The New York
Academy of Medicine



By Exchange

Illinois Medical Journal

THE OFFICIAL ORGAN OF

The Illinois State Medical Society

PUBLISHED AT OAK PARK, ILL.

CHARLES J. WHALEN, M.D., Editor

HENRY G. OHLS, M.D., Managing Editor

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July to December, 1935

NEW YORK ACADEMY
OF MEDICINE
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This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers read, officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

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Illinois Medical Journal

OWNED AND PUBLISHED BY THE MEDICAL PROFESSION OF ILLINOIS
Office of Publication 715 Lake Street, Oak Park, Illinois

Vol. 68, NO. 1 OAK PARK, ILL., JULY, 1935 $3.00 a Year

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JUL 17 1935
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Entered as Secon-class Matter July 21, 1919, at the Post Office, Oak Park, Illinois, under the Act of March 8, 1879. Acceptance for mailing at special rate of postage for in Section 1102, Act of October 8, 1917, authorized July 15, 1918.

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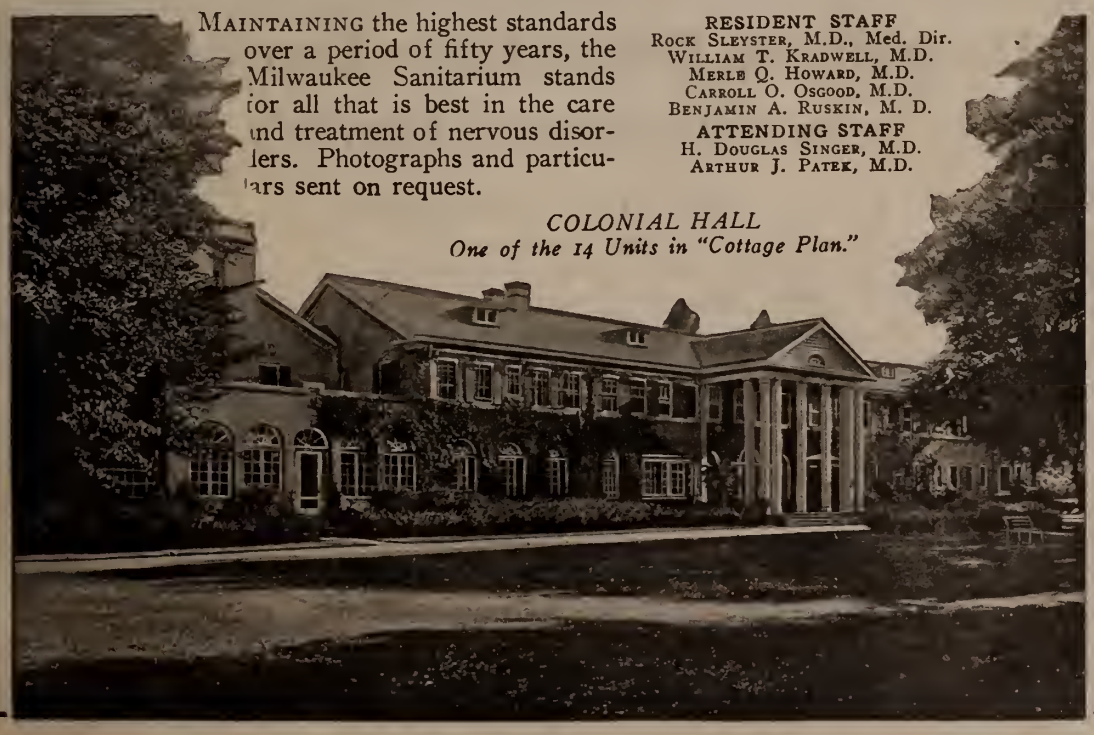
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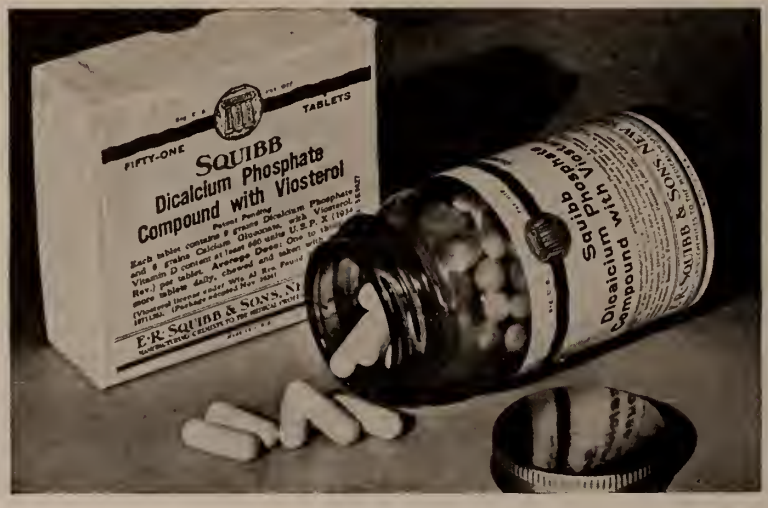
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One of the 14 Units in "Cottage Plan."



"The *Advertising Pages* have a *Service Value* for the *READER* that no *truly Progressive* Physician can *afford to overlook.*"

Especially during pregnancy...

CALCIUM–PHOSPHORUS–VITAMIN D



Dicalcium Phosphate Compound *with* Viosterol Squibb

TABLETS...CAPSULES

It is especially essential during pregnancy to make sure that the mother's diet includes sufficient calcium, phosphorus and Vitamin D.

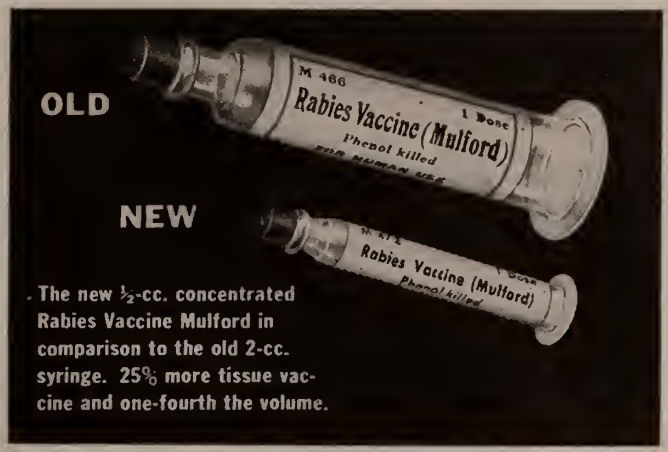
Each *Tablet* Dicalcium Phosphate Compound with Viosterol Squibb contains 9 grains of Dicalcium Phosphate, 6 grains of Calcium Gluconate and 660 Vitamin D units U.S.P. X (1934 Rev.). They are wintergreen flavored, very palatable and may be chewed like candy.

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Here is a Rabies Vaccine in a Concentrated Dose



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The improved, concentrated vaccine is packaged in an improved, smaller syringe. This means greater convenience in administration for the physician—less pain at the site of injection for the patient. As fourteen or twenty-one doses of vaccine are administered within ten to fourteen days, the superiority of the smaller dose is doubly apparent.

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The new package of concentrated Mulford Rabies Vaccine (Human) is available for either the fourteen-dose treatment or twenty-one-dose treatment.

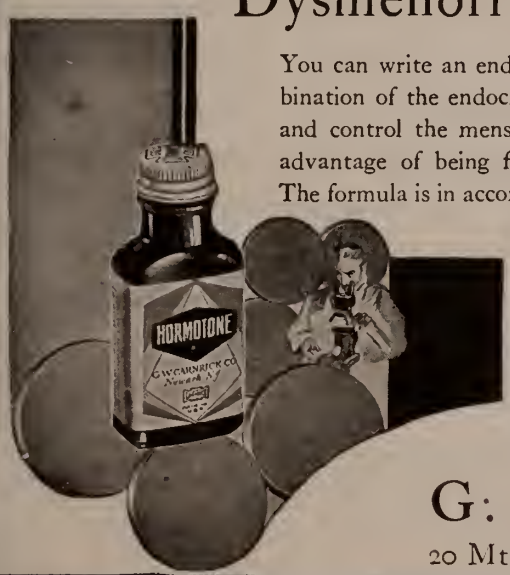
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FOR the seventh year Parke, Davis & Co. is continuing its series of messages to the public, published in the interest of the physician. These advertisements appear in the *Saturday Evening Post, Time, News-Week, Hygeia* and other leading magazines. Our purpose is to bring physician and patient closer together—to strengthen the public's confidence in the most honored of all professions. These messages are suggesting the earnest co-operation of the individual with the physician and are urging a reliance on the physician's knowledge and skill.

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There, dear . . . we needn't worry about scarlet fever now.
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The most dangerous thing about appendicitis.
The man who sentenced himself on circumstantial evidence.
He and his father would have been great pals.
Here's something you don't see in the papers.
This is the lady who was afraid of hospitals.

Most of these you may remember. Yet you may desire to scan through them again and then place this portfolio in your reception room. We shall be glad to send you a copy on request.

PARKE, DAVIS & COMPANY
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Please send me a copy of "YOUR DOCTOR AND YOU."

*Dr.*_____

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EXCESSIVE Summer heat is frequently the cause of lowered vitality, impaired appetite and faulty digestion. Even robust people suffer. Convalescents, elderly people are especially susceptible to hot days. Increased nervousness, fatigue, insomnia, are quite common among them.

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Instead of using habit-forming drugs, a warm, refreshing drink of delicious Ovaltine, taken just before retiring, will often act like a charm in lulling these patients into healthful, restful slumber.

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Why not let us send you a trial supply of Ovaltine? If you are a physician, dentist, nurse or dietitian, you are entitled to a regular package. Send coupon together with your card, letterhead or other indication of your professional standing.

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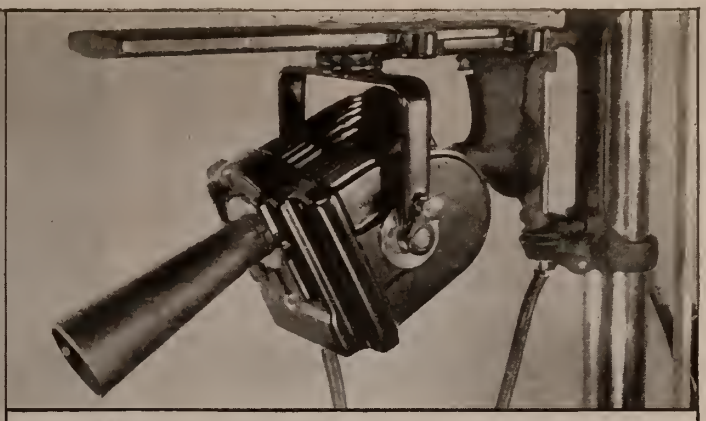
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Manufactured under license in U.S.A. according to original Swiss formula.

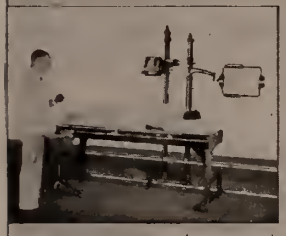






THE HEART OF THE APPARATUS—The x-ray tube and high tension transformer are both immersed in oil and sealed within this grounded metal container—completely insulated against electric shock to operator or patient.

Because THE X-RAY TUBE OPERATES IN OIL





● The New "D" Series, with twice the radiographic power of the original, and greatly increased flexibility through 24 steps of auto-transformer control, is the modern concept of diagnostic equipment for office practice and hospital bedside service.

this G-E Shock Proof Apparatus, though extremely compact, has ample power for a practical range of diagnostic service

To judge the efficiency of a diagnostic x-ray unit by its bulk or massive construction is no more consistent than a like comparison of the automobile engine of ten years ago with that of the present.

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When the principle of complete oil immersion was first made commercially available in G-E x-ray apparatus, the apparatus seemed so small compared with what had prevailed that the profession thought it incapable of generating sufficient power for practical use. The explanation was simple enough, however. With the entire high voltage system, *including the x-ray tube itself,* immersed in oil, bulky equipment was obviated, due to the insulating properties of oil. The application of this principle also rendered the equipment 100% electrically safe, extremely compact and flexible, and far more efficient.

These are the fundamental reasons for the success and ever-increasing popularity of G-E Shock Proof apparatus everywhere. This applies particularly to the well-known "D" series, which offers a range of diagnostic service that has proved eminently practical and satisfactory in many types of medical practice—at prices within reach of every physician and with convenient monthly payments.

Your investigation of the new "D" series in which the radiographic power has been increased 100%, will reveal some interesting facts concerning the possible value of this type of equipment in your practice. The complete descriptive catalog is yours for the asking—and without obligation. Use the coupon below.

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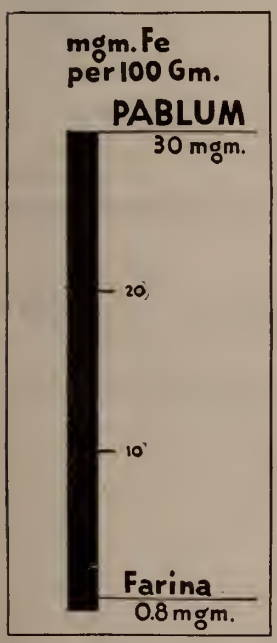
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For bland diet therapy, especially ULCER cases — PABLUM

FAR too often the bland diet prescribed for gastric ulcer, colitis, and similar gastro-intestinal disorders is a deficient diet. An analysis made by Troutt of ulcer diets used by 6 leading hospitals in different sections of the country showed them to be "well below the Sherman standard of 15 milligrams" in iron and low in the water-soluble vitamins.[1] "Vitamin B would appear to be represented at a maintenance level in most cases," writes Troutt, "but the possible relation of vitamin B to gastro-intestinal functions and appetite should make one pause before accepting a low standard."



Although Pablum has a low fiber content it is 37 times richer than farina in iron and in calcium, 4 times richer in phosphorus, and 4½ times richer in copper.

Low in Fiber — High in Iron

Pablum is the only food rich in a wide variety of the accessory food factors that can be fed over long periods of time without danger of gastro-intestinal irritation. Its fiber content is only 0.9%. Yet Pablum contains 37 times more iron than farina and is an excellent source (+ + +) of vitamins B and G, in which farina is deficient. Supplying 8½ mgms. iron per ounce, Pablum is 8 times richer than spinach in iron. It must be remembered, too, that even when such vegetables as spinach are included in the ulcer diet, their iron content is reduced by sieving. Peterson and Elvehjem found, for instance, that orange juice and tomato juice contain only one-third as much iron as the whole fruit.[2]

Rich in Vitamin B

The high vitamin B content of Pablum assumes new importance in light of recent laboratory studies showing that avitaminosis B predisposes to certain gastro-intestinal disorders. Apropos of this, Cowgill says, "Gastric ulcer is another disorder which can conceivably be related to vitamin B deficiency. Insofar as the treatment of this condition usually involves a marked restriction of diet the occurrence of at least a moderate shortage of this vitamin is by no means unlikely. Obviously the length of the period of dietary restriction is an important determining factor. Dalldorf and Kellogg (1931) observed in rats subsisting on carefully controlled diets that the incidence of gastric ulcer was greatly increased in vitamin B deficiency. Observations of this type merit serious consideration."[3] Sure and Thatcher (1933) produced ulcers in rats, similar to those in human gastric ulcer, as a result of specific vitamin B deficiency.[4] Clinical observations by Dickson,[5] Elsom,[6] Larimore,[7] and Mackie[8] lead them to believe that diets low in vitamin B may be conducive to gastro-intestinal disorders, including ulcerative colitis.

Requiring no further cooking, Pablum is especially valuable during the healing stage of ulcer when the patient is back at work but still requires frequent meals. Pablum can be prepared quickly and conveniently at the office or shop simply by adding milk or cream and salt and sugar to taste. Pablum has the added advantage that it can be prepared in many varied ways—in muffins, mush, puddings, junket, etc. Further, Pablum is so thoroughly cooked that its cereal-starch has been shown to be more quickly digested *in vitro* than that of farina, oatmeal, cornmeal, or whole wheat cooked four hours in a double boiler (Ross and Burrill).

Pablum consists of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa, yeast, beef bone, iron salt and sodium chloride.

1-8 Bibliography on request.

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Laryngoscope, 1935, XLV, 149-154★

SEE ALSO
Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.
Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245★



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★ Reprint of papers from Laryngoscope 1935 XLV, 149-154 and from Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245. ☐

★★ Two packages of Philip Morris English Blend cigarettes. ☐

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ELIXIR BROMAURATE

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Cuts short the period of the illness, reduces the frequency of the attacks, relieves the distressing cough and gives the child rest and sleep.

Also valuable in BRONCHITIS and BRONCHIAL ASTHMA

(Relieves the cough in Pulmonary Tuberculosis)

IN FOUR-OUNCE ORIGINAL BOTTLES—A teaspoonful 3 or 4 times a day after meals or more often when necessary.

(An interesting pamphlet on whooping cough and its treatment on request.)

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Bill-collector to little girl: "Little girl, has your father left for work yet?"

Little girl: "My daddy doesn't work. He's a doctor."

Doctor to patient: "You will reduce your blood pressure by one-half if you cut out the wine and women."

Patient: "Will it be all right to reduce it just one-fourth?"

HEIGHT OF EFFICIENCY

"You have kept my nose to the grindstone for forty years," protested her husband.

"I've done more than that," snapped his wife. "I've made you turn the grindstone."—*Boston Transcript.*

TRITICOL

(Oleum Triticum Vulgare—Wheat Germ Oil)

GUARANTEED

Cold pressed, selected wheat germ oil of maximum vitamin E richess as established by certified bioassay!

OLCOTT AND MATTILL (1) recently admonished biochemical workers that all samples of wheat germ oil are not equally rich in vitamin E; some may lack it entirely. Experiments and clinical trials with vitamin E without adequate biological assays are worthless.

Drummond, Singer and Macwalter (2) point out that even laboratory extraction of wheat germ oil with ether may (*and frequently does*) cause inactivation. Cold pressing, while expensive, produces an active oil; but only a certified bioassay can insure the absolute presence of vitamin E.

Adamstone and Card (3) point out that the results of a dietary deficiency of vitamin E have been amply demonstrated for the mammal by numerous investigators, and that in the male, there is produced a *permanent incurable type of sterility involving actual destruction of the germinal elements of the testis.* The mammalian male imperatively requires vitamin E to prevent *irreparable* destruction of spermatogenetic structures.

"Evans (4) and also Mason (5) (6) (7) (8) have shown that a complete disintegration of the germinal elements takes place in which the germ cells and also the germinal epithelium are eventually destroyed. Kudrjaschov (9) confirmed these findings and also demonstrated that, although the male secondary sexual characteristics undergo regression at the same time that the germinal elements disintegrate, the interstitial cells apparently remain normal. He has thus shown the probability that the male sex hormone has its source in some of the developing germinal elements rather than in the interstitial cells of Leydig as is commonly believed. More recently, Mason (10) has found that the type of germ cell destruction produced by vitamin E deficiency is quite characteristic and readily distinguishable from that occurring as the result of inanition of a dietar deficiency in vitamin A."

TRITICOL is the original cold pressed wheat germ oil about which many Clinicians write us of their brilliant therapeutic accomplishments in—

1. Vitamin E sterility.
2. Loss of libido due to germinal vessel destruction.
3. Recurrent abortions.
4. Mental and physical subnormality incident to reproductive langnor and apathy.

BECAUSE:

What vitamin A is to Xerophthalmia,
and vitamin B is to Beri-beri,
and vitamin C is to Scurvy,
and vitamin D is to Rickets,
and vitamin G is to Pellagra—
Vitamin E is to reproduction.

1. Journ. of Biological Chemistry, Vol. 104, No. 2, Feb., 1934.
2. Biochemical Journ., Vol. XXIX, No. 2, Feb., 1935.
3. Journ. of Morphology, Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. of Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

Doctors suggest administering Triticol in milk, 3 to 5 drops per glass.

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CONCENTRATED

In a tablespoon, beef, malt, wheat, milk, egg, and cocoa beans become Trophonine, the food delicious for the sick, indicated in all conditions for which artificial or supplementary feeding is necessary—after surgical operations, in intestinal ulcers, or other alimentary inflammatory conditions, and in treating dyspeptics and neurasthenics. It contains the proteins and carbohydrates in a partially predigested and easily assimilable form.

Trophonine is most pleasing and palatable when served cold—the required dose poured over crushed ice or served in milk, egg-nog, ice cream, or jelly. Prescribe small doses—taken often—for best results.

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The nature of the ricinoleate is such that when it reaches the intestines, it is readily converted into Soricin—a detoxifying agent, effective against the toxic products of putrefactive and proteolytic organisms.

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THE WM. S.

MERRELL

COMPANY

CINCINNATI, U.S.A.

VITAMIN STABILITY DURING CANNING

● For over twenty years, intensive studies have been made of the stabilities of the vitamins under various conditions and treatments. Data accumulated indicate that certain vitamins contained in foods may, under specific conditions, be sensitive to oxygen in the presence of heat, or to heat or oxygen alone (1).

Broad details concerning vitamin stabilities are now general knowledge. The basic principle of commercial canning, namely heat sterilization of foods in sealed containers, is also generally known. As a consequence, there has been a tendency in some quarters to regard canned foods as deficient in certain, if not all, vitamins originally present in the raw material because of the conditions to which they were subjected during the canning procedures. Such a concept is not consistent with the established facts.

In future issues it is our intention to review the vitamin values of specific canned foods, as well as other nutritional virtues which they may possess. At this time we should like briefly to survey the matter of the stability of the most widely distributed vitamins during the canning procedure:

In general, vitamin A is not affected by commercial canning. This also appears true of vitamin G, as judged by present bio-assay methods for this complex dietary factor.

The stability of vitamin B_1 is dependent not only upon the heat treatment accorded it, but also upon the natural acidity of the food in which it is contained. In the more acid foods there is practically no loss of the vitamin during canning; in the less acid foods, which require longer and higher sterilization times and temperatures, the degree of retention is not as high.

Vitamin C is the most labile of all the vitamins; it is especially subject to destruction by open pan methods of cooking which permit free contact with atmospheric oxygen. In canning, however, the food is protected to a greater degree from contact with oxygen in the presence of heat; consequently the antiscorbutic factor is well retained in commercially canned foods.

Protective measures employed in commercial canning combine to insure that vitamins are retained in high degree. Such measures include the use of selected raw materials at the optimum state of maturity; prompt handling of the harvested crop; rapid inactivation of enzymes; removal of respiratory oxygen; and exclusion of air to a maximum extent during canning.

A fuller discussion of vitamin stabilities during canning procedures is not possible here. For further reading a recent publication dealing more in detail with this important subject is recommended (2).

AMERICAN CAN COMPANY
230 Park Avenue, New York City

(1) The Vitamins, Sherman and Smith, The Chemical Catalog Co., New York, 1931.
The Vitamins; Browning, Bailliere, Tindall and Cox, London, 1931.
Vitamins, A Survey of Present Knowledge, Medical Research Council, H. M. Stationery Office, London, 1932.
(2) Ind. Eng. Chem. 24, 650 (1932)

I am interested in having you publish in this journal the facts about the subjects checked.

☐ Nutritive Values of Canned Foods.

☐ Canned Foods in the Diet of Children.

☐ The Tin Container.

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By virtue of its anesthetic qualities, Nupercainal, "Ciba" gives prolonged relief almost immediately from the pain and discomfort accompanying sunburn.

As in the treatment of hemorrhoids, burns, dry eczema, decubitus, roughened and chapped skin, pruritus ani et vulvae, anal fissures, etc., the unbearable pain and tormenting itching quickly yield to the anesthetic and analgesic action of Nupercainal.

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These pills contain digitalis in its completeness and not any separated or extracted part of it, therefore present the entire therapy of this valuable drug.

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THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 68 | OAK PARK, ILL., July, 1935 | No. 1

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

Editorials

WHAT GOVERNMENT-CONTROL OF MEDICINE CAN DO TO MEDICINE

What bureaucratic government control of medicine *can do* for medicine, *does do* for medicine and *will do* for medicine is plainly and accurately set forth in this reprint from the editorial page of Sunday, April 14, of the *Chicago Sunday Tribune*. Written by Donald Day, that paper's correspondent at Riga, Latvia, whose dispatches have stood the test of subsequent results it is interesting to note what American physicians and American patients can expect when state medicine in this country puts medical practitioners into the ranks of government help.

FROM ACROSS THE SEA

Riga, Latvia.—The shortage of physicians and surgeons in Russia is causing anxiety to the soviet government, according to the Moscow Izvestia, which reports that the medical needs of 114,000,000 inhabitants of European Russia and Siberia are now being served by 44000 doctors. The number of doctors now practicing in White Russia, the Ukraine, and Transcaucasia is not mentioned.

"Comrade Stalin has told us that we must pay more attention to the medical profession and hereafter doctors will be accorded all privileges new granted to engineers and technicians," states the Izvestia. "This year the budget includes an appropriation of 370,000,000 rubles for wage increases of medical workers, in addition to the increase already granted to compensate them for the increased price of bread. This is expected to attract a larger number of students to the study of medicine, since only 70,000 are now studying this profession in soviet institutions.

"In order to abolish epidemics of typhoid, dysentery, malaria, and other diseases, a project foreseen in the second five year plan our medical workers must be better educated than they are at present. Diseases developed by industry must also be combated. We must fight for a new generation of healthy workers, able to enjoy the

pleasures of life, who will help us improve our standards of living and culture."

The decree, published on the first pages of all societ newspapers, is signed by the president of the council of people's commissars, V. Molotov, and the secretary of the central committee of the communist party, Josef Stalin. It reports that from March 1 the salary of medical workers will be as follows:

Chief doctor in a hospital located in cities or workers' settlements containing 100 beds or less, 400 rubles per month; from 100 to 250 beds, 500 rubles; from 250 to 500 beds, 550 to 600 rubles; over 500 beds, 750 rubles. (The ruble's nominal value is 50 cents. *It is quoted as low as 2 cents on the Baltic "block bourse."*)

Chief doctor in country hospitals, up to five years' service, 360 rubles; between five and ten years' service, 410 rubles; over ten years' service, 510 rubles.

Doctor in charge of a clinic or polyclinic treating up to 50,000 patients annually, 350 rubles per month; between 50,000 and 100,000 patients annually, 400 rubles; from 100,000 to 200,000 patients 450 rubles; more than 200,000 patients annually, 500 to 600 rubles monthly.

Doctors in rural clinics, up to five years' service, 300 rubles; between five and ten years' service, 350 to 375 rubles; over ten years' service, 425 to 450 rubles monthly.

The highest paid doctors in Russia will be those in charge of leper colonies. They will receive from 650 rubles for colonies with less than 100 patients to 900 rubles for colonies with more than 500 lepers.

Dentists have a much lower wage scale. For the first five years they receive 225 rubles; for from five to ten years' service they are paid 250 rubles, and after ten years they receive 300 to 350 rubles per month.

For similar periods of service a head nurse of a hospital or clinic receives from 200 rubles to 300 rubles uer month. Nurses receive from 150 rubles to 200 rubles. Midwives receive from 100 rubles to 140 rubles per month after ten years' service.

The decree reveals that even with the wage increases the medical profession is still one of the poorest paid in Russia. Engineers and technicians are paid much higher salaries, according to the soviet press, which further reports that they receive quarterly bonuses which often equal their salaries for the same period.

DOCTORS AND SUICIDE STATISTICS

Of fifty-three occupations tabulated for the year 1930 as to "Death Rates by Occupation" according to statistics compiled by The National Tuberculosis Association, the medical profession stands sixth highest in the specific rates for suicides.

Exceeding the doctors, the five occupations preceding are given out as guards, watchmen and doorkeepers; real estate agents; bankers, brokers and money lenders; tailors; and coal mine operatives.

Consider the fact that *in the classified suicide lists for 1921 the doctors ranked highest among suicides,* and take into account that the economic strain of the country, borne most heavily at that time by the physicians has since 1929 been extended to other professions. In 1921 judges ranked next to doctors; and on down the list of classifications ran "bank presidents" third; clergymen, fourth, and editors, fifth. Mayors and members of legislatures ranked the lowest.

It can not be said that economic stress has lessened any since 1921 for the physician. Overwork, breakdown and poverty are three insidious factors that tempt a man to self-destruction.

There should be less of these three elements in the life of every physician. Certainly in the ranks of those who condemn themselves to a foreshortened existence in this mundane world the ranks of the doctors should not stand so high as sixth. From the day of his graduation the ethical physician walks through the world as an agent of mercy and self-sacrifice. His pocket-book is balanced continually against his practice; the charity patient, the uncollectible bill and the encroachment of finance and lay dictation upon the field of science are all elements of insidious destruction against the doctor and his own bare existence.

Leaving material agencies out of the question the mental worries of the physician are as great as his practice. He must be a tireless beast of burden for his patients and that without complaint.

Surely what every doctor deserves is the incontestible right to run his own business, free from political millstones in the way of federal interference and socialistic innovations laid in his lap by a bunch of job-seeking politicians.

CANCER CONTINUES TO BE THE SPHINX AMONG HUMAN AFFLICTIONS

Dread cancer continues to be the sphinx among human afflictions that keeps the medical profession continually on edge. Following diseases of the heart, considered as a group, cancer is now the second leading cause of death.

Statistics compiled recently tend to show that cancer of the lip and skin offer the most hopeful outlook at the present time. On the other hand, the ubiquitous cancer of the stomach smirks defiantly at the medical profession. The rate of cure there, and even after five years' duration, can show only one per cent. Precarious indeed is the prospective contingency for a permanent cancer cure, for a certain reduction in the rate of cancer mortality. Before this is achieved there must be developed new methods of early diagnosis, as well as new methods of treatment.

The enigma of cancer is most discouraging. Standardized methods of statistical practice and tabulation of facts from varying areas increase rather than decrease the puzzle. Up against cancer prophylaxis means finding oneself in a cul-de-sac and backed against a stone wall. Cancer is undeniably on the increase.

For 1933, Cicero, Ill., stands next to the lowest for a death rate from cancer with a rate of 36.5 in 1933, while Hamtramck, Michigan, the lowest, has a rate of 17.0.

Cancer is by far the most important of chronic diseases in America, and demands more than ever the services of the physician, the surgeon, and the research worker. Here is the riddle that baffles the imagination as to diagnosis, treatment and control. In these ways, neither America, nor indeed any other country, has made the progress anticipated from findings with other diseases. In a statistical review in 1933 dealing with an aggregate population of some 32,000,000 persons, distributed among some 50 cities, there have been some 722,274 deaths from cancer since 1906. In other words, during this period of 28 years, details of the record for these fifty cities show an increase of the record as to rate from 71.6 per 100,000 in 1906 to 100.2 in 1920, and to 124.7 in 1933.

During 1932 and 1933, 177 American cities, with a combined population in 1933 of some 44,000,000, show an increase in the cancer rate from 117.1 per 100,000 in 1932 to 118.3 in 1933. For 1933, in these 177 cities, the aggregate number of cancer deaths reached a total of 51,759 as against 50,347 for the previous year.

Going further into this sad comparison it is found that in 1933 as compared with 1932 there was an increase in the rate for 50 American cities with uniform records dating back to 1906 from 122.7 per 100,000 to 124.7. During the first 14 years of that period the rate increased 36.2 per cent. as against 24.4 per cent for the second 14 years. This slight decrease in the proportionate increase is to have been expected in view of the much higher rate prevailing at the present time as against previous years.

In a recent issue of *The Spectator,* Frederick L. Hoffman, LL.B., sets forth some most provocative tables. Commenting thereupon attention is called to the fact that in Hamtramck, Mich., the rates are 17.0 as against 304.2 in Madison, Wis. Now what goes on in Madison as to living conditions that makes for such a showing as against the almost twenty times lesser rate up in Hamtramck, Mich.?

TEN CITIES WITH LOWEST CANCER DEATH RATES IN 1933
Rates per 100,000

Hamtramck, Mich.	17.0
Cicero, Ill.	36.5
Winston Salem, N. C.	48.9
Gary, Ind.	50.6
Flint, Mich.	50.9
Portsmouth, Va.	55.8
McKeesport, Pa.	56.1
Bayonne, N. J.	59.2
Houston, Texas	60.4
Greensboro, N. C.	60.7

CANCER IN 50 AMERICAN CITIES—1906-1933

Year	No. of Cities	Population	Cancer	Death Rate per 100,000
1906	50	18,171,248	13,010	71.6
1907	50	18,688,635	14,030	75.1
1908	50	19,206,022	14,458	75.3
1909	50	19,723,409	15,851	79.9
1910	50	20,242,858	16,623	82.1
1911	50	20,744,686	17,174	82.8
1912	50	21,238,044	18,123	85.3
1913	50	21,751,386	19,344	88.9
1914	50	22,265,170	20,037	90.0
1915	50	22,784,935	20,594	90.4
1916	50	23,290,613	21,844	93.8
1917	50	23,798,434	22,576	94.9
1918	50	24,300,086	23,216	95.5
1919	50	24,812,889	24,188	97.5
1920	50	25,308,623	25,348	100.2
1921	50	25,795,490	26,424	102.4
1922	50	26,281,917	27,698	105.4
1923	50	26,801,570	29,279	109.2
1924	50	27,297,071	30,956	113.4
1925	50	28,053,988	31,809	113.4
1926	50	28,609,424	32,477	113.5
1927	50	29,110,586	33,385	114.7
1928	50	29,687,145	34,889	117.5
1929	50	30,231,732	35,598	117.8
1930	50	30,504,520	37,312	122.3

1931	50	30,987,422	37,487	121.0
1932	50	31,507,450	38,673	122.7
1933	50	31,982,703	39,871	124.7

Per cent increase 1906-1919—36.2.

Per cent increase 1920-1933—24.4.

According to this table, in 1933, there were 20 cities with a rate in excess of 150 per 100,000 as given below.

CITIES WITH CANCER DEATH RATES IN EXCESS OF 150 PER 100,000 IN 1933

Madison, Wis.	304.2
Concord, N. H.	217.5
Portland, Me.	211.8
Pasadena, Cal.	207.6
Gloucester, Mass.	178.9
Troy, N. Y.	178.1
Boston, Mass.	176.2
New Haven, Conn.	175.8
San Francisco, Cal.	174.2
Quincy, Ill.	173.9
Minneapolis, Minn.	167.5
Albany, N. Y.	165.4
Newport, R. I.	160.7
Portland, Ore.	160.2
Sacramento, Cal.	156.1
Seattle, Wash.	153.7
Utica, N. Y.	152.7
Elmira, N. Y.	152.6
Newburgh, N. Y.	152.1
Wheeling, W. Va.	151.5

CANCER IN FIVE LARGEST CITIES IN 1932 AND 1933

Rates per 100,000

	1932		1933	
	Deaths	Rate	Deaths	Rate
Chicago	3,904	110.8	4,055	113.0
Detroit	1,203	71.0	1,127	64.4
Los Angeles	1,737	125.7	1,784	123.4
New York	8,573	118.8	8,932	121.8
Philadelphia	2,710	137.0	2,787	140.0
	18,127	114.8	18,685	116.0

In these five cities the number of cancer deaths increased from 18,127 in 1932 to 18,685 in 1933, or respectively an increase in the rate from 114.8 to 116.0. In all these cities strenuous efforts have been made to bring about better results in treatment and some effort has been made at local control in the direction of prevention. The comparatively low rate for Detroit is explained by the large proportion of young people in that city attracted by the motor industry and considerably below the average cancer age. Unquestionably the age factor in all these cities has some bearing on the local rate but this can only be revealed by extended statistical research which can only be made by the Census Office in Washington as its contribution to the cancer cause.

Extraordinary increases in the local rates are recorded, for example, for Allentown, Pa., from 110.6 per 100,000 in 1932 to 149.1 in 1933; Brockton Mass., from 109.8 to 137.5; Galveston, Tex., from 112.1 to 144.1; Newburgh, N. Y., from 104.9 to 152.1; Scranton Pa., from 112.7 to 141.2; Grand Rapids, Mich., from 98.7 to 120.6; Lexington, Ky., from 105.0 to 144.5; Pasadena, Cal., from 159.5 to 207.6; etc., etc.

When the cities are arranged according to the size of population some very interesting results become apparent.

CANCER IN 176 AMERICAN CITIES IN 1932 AND 1933

Rates per 100,000

Cities in Population Groups	No.	1932 Population	1932 Deaths	1932 Rate
25,000-100,000	87	5,621,075	6,071	108.0
100,000-500,000	76	15,660,938	18,087	115.5
Over 500,000	13	21,698,900	26,145	120.5
		1933		
25,000-100,000	87	5,704,486	6,391	112.0
100,000-500,000	76	15,941,306	18,396	115.4
Over 500,000	13	22,078,472	26,928	122.0

The higher rate for larger cities is quite possibly the result of local facilities for treatment attracting non-residents disproportionate to the total.

CANCER MORTALITY IN ENGLAND AND WALES, 1901-1930

	MALES			FEMALES		
Age	1901-10	1911-20	1921-30	1901-10	1911-20	1921-30
0-	2	2	2	2	2	2
15-	4	4	5	3	3	4
25-	11	11	12	17	16	16
35-	41	42	42	85	79	76
45-	155	168	163	232	227	214
55-	390	444	472	441	438	424
65-	668	800	955	666	711	774
75 and up	787	973	1,276	790	919	1,131

As observed by the Medical Superintendent of the Registrar-General's Office of England and Wales, in his annual report for 1931, just published:

"The trend of the sex death-rates at the several age-groups are widely different. The rates for each sex at ages over 75 have increased progressively since 1901-10, more rapidly for males than females. At 65-70 there has also been a progressive increase for males, but for females this has been recently arrested. At 45-65 there is evidence of an arrest in the increase of the male rates, commencing earlier at 45-55 than at 55-65, whilst the female rates at each age group from 25 to 65 have declined since 1901-10, the extent of this fall amounting to 13 per cent. at ages 35-45, 8 per cent, at 45-55 and 7 per cent. at 55-65."

CANCER DEATH RATE IN 177 AMERICAN CITIES, 1932-1933

	1932 Population	1932 Deaths	1932 Death Rate per 100,000	1933 Deaths	1933 Death Rate per 100,000
Akron, Ohio	265,192	193	72.8	164	60.8—
Albany, N. Y.	130,463	191	146.4	218	165.4+
Allentown, Pa.	96,721	107	110.6	147	149.1+
Altoona, Pa.	86,779	73	84.1	61	68.6—
Atlanta, Ga.	307,329	179	58.2	258	79.7+
Atlantic City, N. J.	69,573	89	127.9	74	104.1—
Auburn, N. Y.	36,760	54	146.9	45	122.3—

	1932			1933	
	Population	Deaths	Death Rate per 100,000	Deaths	Death Rate per 100,000
Augusta, Ga.	62,043	55	88.6	63	100.3+
Baltimore, Md.	820,345	1,139	138.8	1,185	143.3+
Bayonne, N. J.	91,652	57	62.2	55	59.2—
Berkeley, Cal.	87,779	83	94.6	85	94.1—
Bethlehem, Pa.	59,173	40	67.6	44	73.9+
Binghamton, N. Y.	78,822	88	111.6	101	126.6+
Birmingham, Ala.	277,282	190	68.5	200	70.1+
Boston, Mass.	788,397	1,351	171.4	1,395	176.2+
Bridgeport, Conn.	147,391	194	131.6	189	128.0—
Brockton, Mass.	63,737	70	109.8	88	137.5+
Buffalo, N. Y.	587,521	781	132.9	812	136.7+
Cambridge, Mass.	114,507	176	153.7	165	143.6—
Camden, N. J.	119,213	152	127.5	140	117.2—
Canton, N. Y.	108,794	119	109.4	111	100.4—
Charleston, S. C.	62,127	61	98.2	59	94.1—
Chelsea, Mass.	55,779	65	116.5	47	78.1—
Chicago, Ill.	3,523,345	3,904	110.8	4,055	113.0+
Cicero, Ill.	70,256	39	55.5	26	36.5+
Cincinnati, Ohio	462,041	681	147.4	676	144.8—
Cleveland, Ohio	922,974	1,034	112.0	1,043	111.8—
Columbus, Ohio	302,228	445	147.2	417	135.6—
Concord, N. H.	25,903	57	220.1	57	217.5—
Covington, Ky.	67,034	67	99.9	80	117.9+
Dallas, Tex.	272,588	216	79.2	241	85.3—
Davenport, Iowa	61,615	83	134.7	86	138.7+
Dayton, Ohio	211,539	230	108.7	203	93.9—
Decatur, Ill.	59,820	75	125.4	75	124.0—
Denver, Colo.	294,692	404	137.1	399	134.0—
Des Moines, Iowa	146,069	188	128.7	178	120.6—
Detroit, Mich.	1,693,861	1,203	71.0	1,127	64.4—
Duluth, Minn.	102,030	148	145.1	135	132.0—
E. Orange, N. J.	71,800	97	135.1	109	148.3+
E. St. Louis, Ill.	75,994	33	43.4	65	84.7+
Elizabeth, N. J.	118,693	95	80.0	117	97.1+
Elmira, N. Y.	47,733	67	140.4	73	152.6+
El Paso, Tex.	107,821	81	75.1	83	75.3+
Erie, Pa.	120,881	151	124.9	161	130.8+
Evansville, Ind.	105,848	90	85.0	92	85.6+
Fitchburg, Mass.	40,611	42	103.2	39	96.1—
Flint, Mich.	170,613	97	56.9	90	50.9—
Fort Wayne, Ind.	121,129	118	97.4	104	84.0—
Fort Worth, Tex.	175,840	131	74.5	135	74.4—
Fresno, Cal.	54,133	45	83.1	43	78.4—
Galveston, Tex.	54,408	61	112.1	79	144.1+
Gary, Ind.	110,227	64	58.1	58	50.6—
Gloucester, Mass.	24,476	44	179.8	44	178.9—
Grand Rapids, Mich.	175,342	173	98.7	215	120.6+
Greensboro, N. C.	59,284	42	70.8	37	60.7—
Hamilton, Ohio	52,446	56	106.8	56	106.5—
Hamtramck, Mich.	57,942	12	20.7	10	17.0—
Harrisburg, Pa.	81,281	106	130.4	121	148.1+
Hartford, Conn.	169,742	178	104.9	194	112.6+
Highland Park, Mich	54,363	35	64.4	47	85.5+
Hoboken, N. J.	61,205	56	91.5	67	107.9+
Holyoke, Mass.	56,447	57	101.0	76	133.8+
Honolulu, Hawaii	149,190	136	91.2	128	82.9—
Houston, Tex.	325,913	259	79.5	206	60.4—
Indianapolis, Ind.	375,042	373	99.5	376	99.0—
Jackson, Mich.	56,672	65	114.7	66	115.1+
Jacksonville, Fla.	137,811	121	87.8	120	84.8—
Jersey City, N. J.	320,765	380	118.5	442	137.0+
Johnstown, Pa.	67,074	68	101.4	70	104.3+
Kalamazoo, Mich.	56,163	57	101.5	82	144.4+
Kansas City, Kan.	126,368	178	140.9	127	98.9—
Kansas City, Mo.	416,162	527	126.6	541	127.8+
Kenosha, Wis.	51,921	43	82.8	43	82.1—
Knoxville, Tenn.	111,904	77	68.8	91	79.4+
Lakewood, Ohio	76,773	64	83.4	55	69.1—
Lancaster, Pa.	61,434	123	200.2	92	148.2—
Lansing, Mich.	82,987	72	86.8	67	78.8—
Lawrence, Mass.	87,066	82	94.2	88	100.1+
Lexington, Ky.	46,654	49	105.0	68	144.5+
Lincoln, Neb.	80,496	116	144.1	108	130.9—
Little Rock, Ark.	84,872	104	122.5	97	113.2—
Long Beach, Cal.	160,851	176	109.4	136	80.4—
Lowell, Mass.	97,507	122	125.1	115	119.4—
Los Angeles, Calif.	1,382,066	1,737	125.7	1,784	123.4—
Louisville, Ky.	323,621	385	119.0	259	78.3—
Lynne, Mass.	103,022	86	83.5	92	89.0+
McKeesport, Pa.	56,333	10	17.8	32	56.1+
Macon, Ga.	54,018	53	98.1	43	79.5—
Madison, Wis.	61,196	181	295.8	189	304.2+
Manchester, N. H.	77,185	121	156.8	110	142.2—
Massillon, Ohio	28,344	21	74.1	27	92.4+
Memphis, Tenn.	272,907	282	103.3	273	96.9—
Miami, Fla.	128,295	110	85.7	97	71.2—
Milwaukee, Wis.	604,628	651	107.7	622	100.9—
Minneapolis, Minn.	482,608	727	150.6	822	167.5+
Mobile, Ala.	69,822	79	131.1	93	131.8+
Montgomery, Ala.	68,809	71	103.2	60	85.8—
Mt. Vernon, N. Y.	64,665	57	88.1	48	73.2—
Nashville, Tenn.	161,588	164	101.5	172	104.2+
Newark, N. J.	448,385	481	107.3	525	116.4+
New Bedford, Mass.	110.707	112	101.2	142	129.2+
New Britain, Conn.	70,045	74	105.6	67	94.5—
Newburgh, N. Y.	31,464	33	104.9	48	152.1+
New Haven, Conn.	162,685	282	173.3	286	175.8+
New Orleans, La.	474,341	680	143.4	670	139.2—
New Rochelle, N. Y.	57,001	58	101.8	48	83.0—
Newton, Mass.	69,461	66	95.0	82	115.0+
Newport, R. I.	29,825	39	130.8	48	160.7+
New York City	7,215,782	8,573	118.8	8,932	121.8+
Niagara Falls, N Y.	80,833	53	65.6	57	68.5+
Norfolk, Va.	131,734	94	71.4	87	65.4—
Oakland, Cal.	298,832	346	115.8	368	127.0+
Oak Park, Ill.	69,247	100	144.4	98	136.9—
Oklahoma City, Okla.	205,882	60	29.1	144	67.0+
Omaha, Neb.	218,893	317	144.8	292	132.1—
Orange, N. J.	35,858	34	94.8	33	91.5—
Pasadena, Cal.	82,782	132	159.5	178	207.6+
Passaic, N. J.	62,770	62	98.8	65	103.7+
Paterson, N. J.	139,080	218	156.7	207	148.6—
Peoria, Ill.	111,260	111	98.8	107	93.8—
Petersburg, Va.	29,104	27	92.8	32	109.1+
Philadelphia, Pa.	1,978,663	2,710	137.0	2,787	140.0+
Pittsburgh, Pa.	686,462	755	110.0	797	115.0+
Pittsfield, Mass.	51,405	53	103.1	66	126.5+
Pontiac, Mich.	70,115	39	55.6	50	69.8+
Portland, Maine	71,134	131	184.2	151	211.8+
Portland, Oregon	310,992	454	146.0	505	160.2+
Portsmouth, Va.	43,814	28	63.9	24	55.8—
Providence, R. I.	256,329	412	160.7	381	147.8—
Pueblo, Colo.	51,635	48	93.0	51	97.5+
Quincy, Ill.	39,943	63	157.7	70	173.9+
Quincy, Mass.	77,221	80	103.6	79	99.3—
Racine, Wis.	69,486	88	128.5	70	99.5—
Reading, Pa.	111,900	134	119.7	114	101.6—
Richmond, Va.	185,386	230	124.1	233	124.9+
Rochester, N. Y.	335,179	496	148.0	480	141.9—
Rockford, Ill.	90,265	77	85.3	87	94.3+
Roanoke, Va.	73,202	60	82.0	63	84.0+
Sacramento, Cal	99,825	148	148.3	160	156.1+
St. Louis, Ill.	832,652	1,210	145.3	1,214	145.0—
St. Paul, Minn.	279,652	399	142.7	378	133.4—
Salem, Mass.	43,542	56	128.6	54	123.8—
Salt Lake City, Utah	145,100	194	133.7	151	102.5—
San Antonio, Tex.	246,824	231	93.6	202	79.6—
San Diego, Cal.	164,033	258	157.3	240	140.2—
San Francisco, Cal.	662,204	1,097	165.7	1,175	174.2+
San Jose, Cal.	61,566	59	95.8	44	69.5—
Savannah, Ga.	85.402	70	82.0	76	88.8+
Schenectady, N. Y.	97,204	99	101.8	144	147.1+
Scranton, Pa.	144,673	163	112.7	205	141.2+
Seattle, Wash.	376,518	532	141.3	586	153.7+
Sioux City, Iowa	80,911	103	127.3	120	146.9+
Somerville, Mass.	106,257	90	84.7	126	117.4+
Spokane, Wash.	117,917	152	128.9	167	140.4+
Springfield, Ill.	74,618	96	128.7	103	135.8+
Springfield, Mass.	154,328	218	141.3	215	137.6—
Springfield, Ohio	70,471	86	122.0	74	103.9—
Syracuse, N. Y.	217,507	287	131.9	307	138.8+
Tacoma, Wash.	108,950	141	129.4	157	142.9+
Tampa, Fla.	111,772	111	99.3	111	95.3—
Terre Haute, Ind.	62,108	85	136.9	64	103.6—
Toledo, Ohio	301,086	350	116.2	363	118.7+
Topeka, Kan.	67,198	79	117.6	82	119.6+
Trenton, N. J.	124,247	153	123.1	163	130.8+
Troy, N. Y.	72,925	154	211.2	130	178.1—
Union City, N. J.	66,948	32	47.8	46	65.1+
Utica, N. Y.	103,387	135	130.6	159	152.7+
Waco, Tex.	55,284	44	79.6	60	107.2+
Washington, D. C.	497,315	723	145.4	740	147.4+
Waterbury, Conn.	101,684	72	70.8	100	97.6+
Wheeling, W. Va.	62,847	86	136.8	96	151.5+
Williamsport, Pa.	47,808	66	138.1	61	125.2—
Wilmington, Del.	105,814	121	114.4	133	126.1+
Winston-Salem, N. C.	82,597	33	40.0	42	48.9+
Worcester, Mass.	198,311	227	114.5	278	139.1+
Yonkers, N. Y.	142,227	147	103.4	110	75.6—
Youngstown, Ohio	178,210	91	51.1	139	76.4+
	43,005,389	50,347	117.1	51,759	118.3+

Summarizing the changes in the general death rate for cancer for certain countries, the following figures will be of interest. For the United States Registration area the death rate from cancer increased from 86.2 per 100,000 in 1922 to 107.1 in 1932, an increase of 20.9 per 100,000. For England and Wales the rate increased from 122.9 in 1922 to 151.0 in 1932, or 28.1 per 100,000. In the Irish Free State the rate increased from 83.5 in 1922 to 111.4 in 1932, or 27.9 per 100,000. In Northern Ireland, the rate increased from 100.2 in 1922 to 124.1 in 1932, or 23.9 per

100,000. In Scotland, the rate increased from 125.0 in 1922 to 153.0 in 1932, or 28.0 per 100,000. Thus while there are important variations in the rate of increase, the same trend is exhibited in all the countries utilized for the present purpose.

To make the international comparison as complete as possible I include a tabulation of cancer deaths in fifteen Canadian cities for the two years 1932 and 1933. The combined rate for these cities is shown to have increased from 118.5 per 100,000 in 1932 to 127.0 in 1933, a very marked increase when compared with the corresponding increase for American cities from 117.1 to 118.3 during the same two years. The rate of increase was heaviest for Montreal where the local rate increased from 108.2 in 1932 to 121.4 in 1933.

CANCER IN 15 CANADIAN CITIES, 1932 AND 1933

Rate per 100,000

	1932 Popula-lation	1932 Deaths	1932 Ratc	1933 Popula-lation	1933 Deaths	1933 Rate
Brantford	30,122	35	116.2	30,184	41	135.8+
Calgary	85,365	98	114.8	87,371	104	119.0+
Edmonton	80,828	112	138.6	82,829	139	167.8+
Hamilton	153,504	160	104.2	154,276	174	112.8+
London	72,031	93	129.1	73,037	90	123.2—
Montreal	830,167	898	108.2	849,409	1,031	121.4+
Ottawa	126,698	140	110.5	128,412	146	113.7+
Quebec	132,494	161	121.5	135,885	182	133.9+
Regina	54,896	62	112.9	56,756	37	65.2—
Saskatoon	44,750	45	110.6	46,479	26	55.9—
Toronto	638,152	835	130.8	648,721	918	141.5+
Vancouver	258,116	307	118.9	270,925	408	150.6+
Victoria	61,239	111	181.3	61,239	93	151.9—
Windsor	65,390	47	71.9	67,827	50	73.7+
Winnipeg	221,437	280	126.4	225,287	268	119.9—
	2,855,189	3,384	118.5	2,918,637	3,707	127.0+

CURABILITY OF CANCER—FIVE-YEAR CURES

	Aver. Per Cent		Aver. Per Cent		Aver. Per Cent
Stomach	1	Intestinc	2	Tonguc	10
Liver Gall Bladder	1	Rectum	2	Bladder	15
Prostate	1	Bone Sarcoma	2	Intraoral	15
Pharynx	1	Brain	2	Lip	50
Ovary	1	Larynx	5	Skin	60
Kidney Adrenal	1	Testis	5	Pancreas	?
Thyroid	1	Breast	9	Lung	?
Lymphosarcoma	1	Utcrus	10	Esophagus	?

CANCER DEATH RATES, UNITED STATES AND ENGLAND AND WALES, 1927 AND 1931

Rates per 100,000

	United States 1927	United States 1931	England and Wales 1927	England and Wales 1931
Lip	0.4	0.5+	0.79	0.76
Tongue	0.8	0.8	3.32	2.96
Mouth	0.3	0.4+	2.11	1.57
Jaw	1.0	0.9+	1.77	1.50
Pharynx	1.0	0.8	1.05	1.14+
Oesophagus	1.6	1.7+	5.28	5.91+
Stomach	22.2	21.3	26.57	28.68+
Liver and Gall Bladder	9.2	8.6	9.46	8.89
Intestines (ex. rectum)	9.0	9.6+	18.46	17.94
Rectum and anus	4.1	4.6+	11.25	12.26+
Ovary and Fallopian Tube	1.3	1.7+	2.78	3.26+
Uterus	12.1	12.1	11.27	10.86
Vulva and Vagina	0.4	0.4	0.88	0.96+
Breast	8.8	9.6+	14.55	16.11+
Skin	2.5	2.5	2.71	2.91
Larynx	0.7	0.8+	2.58	2.80+
Lungs and Pleura	1.9	2.4+	2.43	4.70+
Pancreas	2.2	2.6+	3.49	3.77+
Kidneys and Suprarenals	1.2	1.4+	1.36	1.54+
Prostatc	3.5	4.1+	2.98	3.83+
Bladder	3.0	3.2+	2.82	3.31+
Brain	0.5	0.7+	0.39	0.54+
Bone (jaw excepted)	1.3	1.4+	1.79	1.79
Testes	0.2	0.3+	0.37	0.33

As observed by the Medical Superintendent of the Registrar-General's Office of England and Wales, in his annual report for 1931, just published:

"The trend of the sex death-rates at the several age-groups are widely different. The rates for each sex at ages over 75 have increased progressively since 1901-10, more rapidly for males than females. At 65-70 there has also been a progressive increase for males, but for females this has been recently arrested. At 45-65 there is evidence of an arrest in the increase of the male rates, commencing earlier at 45-55 than at 55-65, whilst the female rates at each age group from 25 to 65 have declined since 1901-10, the extent of this fall amounting to 13 per cent. at ages 35-45, 8 per cent. at 45-55 and 7 per cent. at 55-65."

ARTIFICIAL FEVER THERAPY IN TREATMENT OF CORNEAL ULCER AND ACUTE IRITIS

In the last year E. L. Whitney, Detroit (*Journal A. M. A.*, May 18, 1935), used artificial fever alone as a means of therapy in a number of eye conditions. Eight cases presenting varying types of corneal ulcer and six cases of acute iritis are reported. The results suggest that there is merit in this form of fever therapy, in which the height of the fever and its duration are under such perfect control. Some of the patients received different types of medication during the fever treatment as well as before, while others had fever therapy only. Prompt healing of some corneal ulcers after fever therapy was noted. Local treatment is quite adequate in many cases, but fever treatment has hastened healing when local measures have seemed to be making little progress. This is particularly true in cases in which systemic stimulation is indicated. The production of artificial fever in acute iritis is of definite value. Recovery is hastened. Further observation is necessary to determine the effect it has in preventing recurrences.

"The auto industry," says a trade barometer, "records a 78 per cent jump." Heaven help the pedestrian with arthritis.—*Detroit News.*

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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You will note some changes in the Committee on Medical Economics of the Illinois State Medical Society for the coming year. Due to increased duties on other committees and work for organized medicine, some of the past members have asked to be relieved from further duties on this committee. It is with great regret on the part of the other members of the Committee that the Chairman of the Council saw fit to accede to their requests. Their cooperation and advice have been of great value to the other members of the Committee, particularly the Chairman, and we wish at this time to acknowledge the high regard we have for them and their work. We hope that they will continue their interest in the work of this committee and we will feel free to call on them at any time for advice and assistance.

Those of us who were unable to attend the annual meeting of the American Medical Association at Atlantic City last month, have followed the transactions of the House of Delegates with great interest and are more than gratified at the time and attention given our pet subject, medical economics. From the reports published, which are at best scant at this time, the attention given to this great subject was for the first time somewhat in proportion to the importance thereof. Apparently there is not much danger of any legislation in regard to "state medicine" being passed at this session of Congress. However, this does not mean that the danger of such attempts being made in years to come is any the less. However, it does give us an additional year, during which time we can educate both the medical profession and the laity to the dangers inherent to such plans and having done so, proceed to organize the public into a great influence opposed to any change in the present method of conducting the practice of medicine.

It was particularly pleasing to see that in the experiments being conducted over the United States as to new methods of furnishing medical care, Illinois was conspicuous by its absence from the list. This shows that there has been no great demand for a change or the organization in Illinois has been able to control radical attempts and guide the course in a conservative manner. Thus we can delay action until we can see the results in other states. Unquestionably definite progress will be made toward the proper solution of this problem, but all the proposed methods cannot be correct and Illinois should be better able to properly evaluate the success of the different plans if it is not influenced by the enthusiasm for a plan conceived and operated by themselves. The great differences in the proposed plans show that they are at present experimental and there is far from agreement as to the success of the various plans even among those actively participating therein.

At the suggestion of the Bureau of Medical Economics of the A. M. A., the following principles were added to those adopted at the Cleveland meeting in 1934.

1. A preliminary study should be made in each community to determine the need for any change in medical service.

2. The patient should have the freedom of choice of physicians.

3. The plan should be completely controlled by the County Medical Society. This does not mean that only physicians should be members of the Board of Control, but they should control it.

4. Payment for medical service to low income groups should be based on ability to pay rather than to have a fixed minimal fee schedule for all individuals.

5. There should be a definite plan to decide the individual's ability to pay for services.

6. There should be some centralized system of records and bookkeeping.

7. Any plan contemplated should contemplate complete medical service.

8. The administration of any plan should in-

clude provisions for a service charge to provide for a central office and also provide a reserve for unusual emergencies and catastrophic loads.

9. There should be recognition of standing of medical specialties and resistance to exploitation by corporations.

From the above, it is evident that the Bureau of Medical Economics has attempted in every way to carry out the mandate of the House of Delegates and that they have accomplished a great deal in a comparatively short time. It is our duty to follow our Journals, particularly the J. A. M. A., and keep abreast of the progress being made in this line so that we can explain to the public what we are doing and why we are doing it. When we are able to do this, we will wield a great influence as to the desires of this nation, which can be transmitted to the law-making bodies by the proper methods at the proper time.

Again, we want to remind you that we desire to be of service to the members of the Illinois State Medical Society and any inquiry addressed to the Chairman will be referred to the proper individual for definite authentic reply.

E. S. Hamilton,
Chairman, Committee on Medical Economics.

Many of us during the past three years, and more particularly during the past year have believed that our present economic upheaval has been largely limited to the practice of medicine. It is quite probably true that the banker, the merchant, the automobile dealer, and members of many other professions, trades and industries have the opinion that they and their work are affected most.

The "brain trusters" have told business what they must charge for their product, the farmer what he can raise, and what must be plowed up, the employer what he must pay his employees, and how many hours they are permitted to work, and the physician what he must do, what he may receive, and what medicines can be used.

It is quite obvious, as we study the many orders which have been released during the past two years, that medicine could not possibly escape, even though the individuals back of it all are laymen. Medicine has attempted to solve its own problems, and much information and experience have been gained through the efforts. Today there are approximately 200 plans for providing medical care to the indigent and those in the low income classes, below the "comfort level."

The Bureau of Medical Economics of the American Medical Association has intensively studied and has attempted to classify the many plans, and also evaluate the findings.

Some interesting news has recently been released through the *United States News* which is food for thought for the American People. Under the "brain trusters" and "professors" who work their problems out principally on paper, our government, according to this report, has spent more money during the past three years, than was spent in all administrations from Washington to Woodrow Wilson. We are told that in 124 years, the Government spent $24,521,845,000.00 and this through 31 presidential terms of four years each, and during this period we went through four wars.

The expenditures as reported and budgeted for the past three years amounts to the sum of $24,206,533,000.00. The Civil War cost our government approximately $3,500,000,000.00 and it is said the cost of the Mexican War and the Spanish-American War added to this figure would still fall short of the appropriation recently voted of $4,800,000,000.00 for the many proposed projects to be undertaken or carried out during the coming year.

We have seen an ever increasing system of bureaucracies develop in this country during recent years, which has been increasing by leaps and bounds during the years of economic depression. The cry for "social security" has been increasing, along with proposals for division of wealth, and a redistribution of holdings in land and other property. We are told by many that individualism should be destroyed, and mass production methods in everything, including medicine, should be the logical substitute.

Organized Medicine has emphatically gone on record repeatedly as disapproving "mass" methods in medicine, and insists that individualism must be maintained if medical progress as we have seen it during recent decades, shall continue.

Medical service today, and that of yesterday are entirely different. With our improved methods of examination of our patients, with the many valuable additions to our diagnostic armamentarium, and the better forms of treatment, including studies in diet, and other new forms

of therapy, means that the physician can no longer give adequate service at a cost similar to those of our forefathers in medicine.

We are all interested in giving adequate medical care to all, regardless of their economic standing, and many plans have been developed, while many others are being studied to enable physicians through medical societies to give a better service to those unable to maintain the average standards of life. We have every reason to believe that Medicine can solve its own problems, without the assistance or guidance of lay minds, if we are permitted to make our own studies and arrive at our own conclusions.

The American Medical Association and the Illinois State Medical Society have established definite principles for the guidance of county medical societies desiring to undertake an "experiment" along the lines of lower cost medical care to those below the comfort level.

Organized Medicine does not believe that a system of compulsory sickness insurance with the creation of a vast army of lay employees in the administration departments, and to be paid for by a vast system of taxation, is necessary to accomplish the desired results.

The report of the Bureau of Medical Economics of the American Medical Association will soon be published, and the transactions of the House of Delegates of the A. M. A. at the recent Atlantic City meeting are now appearing in the Journal of the American Medical Association and should be read by every member of the Illinois State Medical Society.

In order that every member may know what our own State Society is doing in an effort to aid physicians and our citizenry, they should read the transactions of the House of Delegates of our Society at the Rockford meeting, which will be published in the July Illinois Medical Journal.

In order that we may become better acquainted with the facts, and be in position to better understand the problems before our profession, we should endeavor to get all authoritative information on the subject as it appears in our medical literature. Physicians should become more vitally interested in other problems affecting them as citizens, and should not restrict their reading to medical problems exclusively.

Progress in Medicine will compare favorably with the developments in science, industry and other professions in general, and in order that the greatest benefits to humanity may be continued, Medical Care must be a problem to be solved only by those individuals who by virtue of their training and practice are capable of giving adequate information on the subject.

Harold M. Camp, M. D.

ILLINOIS STATE MEDICAL SOCIETY

PROCEEDINGS OF THE HOUSE OF DELEGATES

Rockford, May 21-23, 1935

The first meeting of the House of Delegates of the Illinois State Medical Society was called to order at 3:32 P. M., Tuesday, May 21, 1935, by the President, Dr. Charles S. Skaggs.

The President: The first order of business is the report of the Credentials Committee.

Dr. E. P. Coleman: The Credentials Committee has seated 52 delegates from down state, 39 from the Chicago Medical Society and 13 members of the Council, a total of 104.

The President: The Chair will entertain a motion that these be made the official delegates of this meeting of the House of Delegates.

Dr. J. S. Nagel, Chicago: I move that these delegates be made the official delegates of the House of Delegates. Motion seconded by Dr. Mather Pfeiffenberger and carried.

The President: The roll call will be the signed slips sent in to the Secretary.

The Secretary: Mr. President, we have a total of 104 delegates. A quorum is present.

The President: The House is duly organized for the transaction of business. We will have the reading of the minutes of the last meeting.

Dr. Mather Pfeiffenberger, Alton: I move that the minutes be adopted as published in the July 1934 issue of the Illinois Medical Journal. (Motion seconded and carried).

The President: The next order of business is the report of the Officers. Heretofore, the reports of officers, councilors and committees were accepted as printed in the hand book, unless the respective authors wished to supplement them at the meeting. It is felt that we were doing this in a little bit too rapid a manner. Many of these reports contain valuable matter. If the House will accept the recommendation of the Council, reference committees will be appointed to study the reports and report back Thursday morning.

Dr. A. A. Hayden, Chicago: I move that the

procedure recommended by the Council be the rule of order at this meeting. (Motion seconded by Dr. J. H. Edgcomb and carried).

The President: The following Reference Committees have been appointed:

Committee on Reports of Officers:
Mather Pfeiffenberger, *Chairman*
T. H. Culhane,
Charles H. Phifer,
J. H. Hutton,
Charles B. Reed.

a. The President.
b. The Secretary.
c. The Treasurer.
d. The Chairman of the Council.

Committee on Reports of Councilors:
G. C. Otrich, *Chairman*
Fred Etherton,
Charles Harmon,
George W. Post,
Robert Hayes.

Committee on Reports of Standing Committees:
R. L. Green, *Chairman*
Walter Stevenson,
G. Henry Mundt,
Charles J. Whalen,
N. S. Davis.

a. Public Relations.
b. Legislative.
c. Medico-Legal.
d. Medical Education and Hospitals.
e. Relation to Public Health Administration.

Committee on Reports of Council Committees:
J. J. Pflock, *Chairman*
Hugh MacKechnie,
Walter Wilhelmj,
E. E. Davis,
C. H. Hulick.

a. Educational Committee, and Sub-committee, Scientific Service Committee.
b. Medical Economics, and Sub-committee on Group Hospitalization.
c. Veterans Service Committee.
d. Advisory Committee to Illinois Emergency Relief Commission.

Committee on Reports of Committee on Scientific Exhibit; Committee on Social Security Problems; Report of the Editor:
C. E. Humiston, *Chairman*
C. O. Burgess,
T. B. Williamson,
P. J. McDermott.

Attendance Committee:
Bernard Klein,
H. A. Felts,
C. B. Ripley.

Resolution Committee:
J. S. Templeton, *Chairman*
E. H. Ochsner,
E. P. Sloan,
Guy M. Cushing,
Lee O. Frech.

The President: The Chairman of each Committee will arrange for a meeting to go over the reports. If additional information is desired, the President, Secretary or writer of the report will be glad to furnish it.

I will call for each report of Officers, Councilors and Chairmen of Committees in turn, and if the maker of the report wishes to make a supplementary report to the published one, he is privileged to do so.

REPORT OF THE PRESIDENT

To the Members of the House of Delegates:

One year is much and little time depending upon the task that confronts an individual or a group of individuals. One year ago, the skies of organized medicine were darkened by the heavy and dark clouds of State Medicine, Social Insurance and Socialized Medicine. There was every indication that a storm was approaching that would at least shake the structure of organized medicine if not wreck our organization.

The medical profession was not prepared to meet these issues because of the lack of interest on the part of the individual physician which in turn produced an apathy of the county societies. This still remains the greatest danger to organized medicine for our organization can be no stronger than the individual physician makes the county society.

My year as President of the Illinois State Medical Society has seemed but a day, and a day far too short to complete the task that was assigned me. The depression was still with us but the doctors have adjusted themselves to this condition. To make these adjustments had so completely absorbed the doctors' attention that it was no easy task to get them to realize the dangers of Socialized Medicine and compulsory Health Insurance. To do this it was necessary to inaugurate a program of individual approach. Such a program was decided upon and has been carried in one way or another to each county society and I believe has accomplished much good. A program of this nature requires much time and travel and is not possible for any one individual to do alone.

Our Secretary has always been a willing worker. I do not know just how willingly he has worked this past year but I do know that he has worked hard and long hours and has never turned aside a request, often driving most of the night in order to fill a need somewhere. I owe much to him for he has made it possible for me to carry forward my program beyond the limits I had deemed possible.

The Council has had a busy year. Each meeting has had its full quota to meet but at no time has there been any unfinished business. Each councilor at the call of the chairman has laid aside his private interests and responded to the call. The chairman has presided at every meeting of the Council often at the risk of his health.

The Legislative Committee has had a busy year for there has been much for them to do and they have met the challenge. A busy year for the Legislative Com-

mittee means extra work for the Educational Committee. This committee has met the demand and answered each call for service.

The needs of our organization have been so great that the Council deemed it wise to create some new committees. In order to have men who were familiar with the work needed to be done and no time to prepare others for the task, it was necessary to place these burdens on backs already over-loaded. I am glad to report that not a one refused to accept extra work.

Among these new committees was the economic committee which has had a busy year and has accomplished much.

A committee to help the educational committee was added and is going forward with a program that will have a far-reaching effect in stemming the tide of social insurance.

It has been a busy year, for all who have had a part in it. Much has been accomplished, efforts have been rewarded with results and this should encourage us to redouble our efforts and should enlist others in the service of the Society.

There is much need for the county societies to swing into more intensive action. There is a great potential strength in the county societies that is lying dormant. The officers of the State Society are doing all that is possible for them to do. If more is done, and there is a great need for more work, the county societies must swing into action. I am encouraged to believe that they are going to respond and that next year will record work from this source that is going to account for much.

The Woman's Auxiliary under the leadership of a hard working president has indeed been a hand-maiden to the State Society. I have asked much from them and they have given more than I asked.

The term of my office is nearing an end. I have been happy in my place because there was work to be done and because I had the privilege of serving with friends who loved the work and the cause. Each moment presented some new or old problem but honest effort solved them and labor was rewarded.

I am confident that organized medicine is more alive to its own interests than it was a year ago and that it is going to put forth a greater effort to safeguard our profession.

Let's reunite ourselves in the bonds of medical brotherhood and live the principles and ethics of organized medicine in our individual lives and bring the dawn of a new day.

Next year will have its problems and needs. Our president will need the help and cooperation I needed. Let's be ready to give it to him. Our Editor of the Illinois Medical Journal will tell us of these needs, so let's read what he writes and thus assure ourselves that next year will bring better and greater results.

Respectfully submitted,

Charles S. Skaggs, M. D.,

President.

The President: I realize that there are a lot of serious things confronting the medical profession at this time. We will be tempted probably to get a bit radical and confused, but I trust we will go along rather cautiously and not overthrow things in too big a hurry. I realize there are many things which we know should be thrown out, but be careful that we do not throw out the things we need.

REPORT OF THE SECRETARY

To the Members of the House of Delegates:

Your secretary has the honor at this time, of presenting his eleventh annual report. During these eleven years we have seen changing conditions affecting the practice of medicine, and even though we have gone through the greatest depression of modern times during the past few years, we have also seen the development of plans to forever take the practice of medicine away from medical men, and place it in the hands of political appointees.

These conditions have meant more work than ever before on the part of the officers, members of the council, and committees of this society, but each has attempted to do the work assigned to them, and in our opinion, has done it well. Even though we have seen big business, small business, trades and industry suffer tremendously during recent years, and have seen many of them go completely out of business, we have seen the members of our profession carrying on in a most commendable fashion. Many of these people who have been unable to run their own business satisfactorily, now believe that they should tell us how medical care should be provided under a socialized plan.

THE SOCIETY

The Illinois State Medical Society has gone through another year, without curtailing any activities, but actually increasing them, yet has reduced the operating expenses to such an extent that with the increased activities necessitating additional expenditures, we have finished in the black.

At the close of the fiscal year our membership was slightly less than that reported a year ago, through the necessity of removing many names from the membership when requested to do so by the component society secretaries. At this time, many of these formerly delinquent members are being reinstated, and with a properly organized membership committee in each county medical society, it is our opinion that our membership during the next year should be materially increased.

The officers and members of the council have had more duties placed on their shoulders during the past year, largely through the efforts of many to force upon the American public a system of socialized medicine. This society has repeatedly gone on record as opposing not only the many inroads on medical practice, but the ever extending system of Federal Bureaucracies.

The American Medical Association called a special meeting of their House of Delegates which met in Chicago on February 15, 16, 1935. The A. M. A. House voted unanimously, to reaffirm its opposition to all

forms of sickness insurance, or any Federal or State subsidy in medicine. Immediately after this meeting, our Council held a special meeting, and voted to approve the various actions taken by the A. M. A. House of Delegates.

Our president has travelled throughout the state and has visited many county societies, giving to each of them a message of sincerity and hope. He has done his work well and every member attending this annual meeting should join together on Wednesday evening, and show their appreciation of his efforts. Dr. Skaggs was the first president in the history of the society who was denied the year of apprenticeship through being president-elect, but with this handicap, he went to work immediately and has shown conclusively that the trust placed in him last year by the House of Delegates, was completely justified.

We would respectfully call to your attention, the financial and membership reports appearing in this hand book.

THE COUNCIL

Each member of the Council has done the work assigned to him during the past year. All regular meetings, and one special meeting of the Council were held, with an excellent attendance. On those rare occasions when a single member was missing, it was through some unavoidable cause, and invariably a telegram was submitted giving the reason for the absence.

It was deemed necessary to form several committees during the past year, one of these, the committee on social security problems whose first annual report is submitted at this meeting. This committee hopes to have their activities under way within a short time, and show the membership that a gap will be filled by it, in the consideration of the more urgent problems now before us.

THE COMPONENT SOCIETIES

The component medical societies throughout Illinois have held many meetings, with a good attendance for the year. Many excellent scientific presentations have been made at these meetings, and many economic talks have been added to cover the important subjects now before us.

The cooperation given to your secretary by the many county society secretaries has been of the finest type, and we desire to take this opportunity of thanking each of them, and giving this assurance that we are truly grateful.

Our county societies are better organized than ever before, and very few physicians in Illinois are not thoroughly informed on the efforts of organized medicine to oppose a radical change in the form of supplying medical care.

SOCIAL SECURITY PROBLEMS

When this House of Delegates was in session one year ago, we had no intimation whatever, that efforts would focalize within a short time to force on the American people, a system of Sickness Insurance. Soon after the annual meeting of the American Medical Association in Cleveland last June, President Roosevelt selected his committee on economic security, and they were charged with the responsibility of considering plans to improve the social security of our people, and conduct hearings on the basic subjects which were selected for study.

It was quite evident that most of the members of this committee were favorable to the socialization of medicine, and were desirous of recommending a plan whereby sickness insurance would be a reality, and payment for all medical care be made through insurance. The developments of the past six months along this line, are known to all of you, and we will not discuss them in this report. At this time the social security bill desired by the administration is the Wagner, or Wagner-Doughton-Lewis Bill. The reference to sickness insurance in the bill, is the formation of the Social Insurance Board in the Department of Labor, which is asked among other duties, to study and recommend plans for overcoming the social hazards of life, including sickness insurance.

It is quite obvious to all, that such a scheme as many propose will add greatly to the tax burdens of our people, and this fact alone, may be sufficient to prevent its becoming a law at this time. The American Medical Association called a special meeting of the House of Delegates, which met in Chicago last February, and in a resolution which was unanimously adopted, the House again went on record as opposing sickness insurance in every form. Our Council held a meeting in March, and unanimously approved the action taken by the A. M. A. House of Delegates, which action opposing a change in the manner of providing medical care for all people, has repeatedly been similarly taken by the Illinois State Medical Society.

Every physician in Illinois and elsewhere, should become thoroughly informed on this subject, and be prepared to discuss it among their friends, and with members of the state and National Legislatures, at home. At this time there are more than 150 plans of providing adequate medical care to people in all walks of life, at a cost which they are able to pay. The Bureau of Medical Economics of the A. M. A. has studied all of these plans, and expects to have definite information concerning them available for all societies. Your secretary believes that this House of Delegates should again go on record as opposing "state medicine" in all forms, so that our opinion on the subject will be generally known.

THE ANNUAL MEETING

The Winnebago County Medical Society which is the host Society for this 1935 annual meeting, has endeavored to arrange everything for the meeting to make it a highly successful one. The section officers, and all others interested in the annual meeting, have worked diligently for the same purpose.

The recently selected committee on scientific exhibits have arranged an unusually attractive scientific exhibit, and will award suitable prizes for the best exhibits in each of the three classes which are represented.

Another interesting addition to the exhibits, is the motion picture theatre, where instructive films are being shown each day which are of interest to all physicians.

For the first time in the past five years, all available

space is occupied by technical exhibits, representing many branches of medicine and surgery, and the various specialties. Our exhibitors should be encouraged in their efforts, by the members and guests at the meeting, who owe them the courtesy at least, of looking over their products.

DEATHS OF PROMINENT MEMBERS

During the past year, we have lost one past president, one who was secretary of this society for many years, and many other outstanding members of the profession in various parts of Illinois. Dr. Otho B. Will of Peoria, was president of this society in 1894, and until his death, was the oldest living past president of the society. Dr. Will was truly a grand old man who began his practice before the days of antiseptic surgery, a man who was truly a family physician, and yet who developed with the times, until he was forced through advanced age, to retire from active work.

Dr. W. H. Gilmore formerly of Benton, then for several years practiced his specialty in Chicago, was taken by death within the past month. Dr. Gilmore was secretary of this society for nine years and was well known to most of the members of the Society.

Dr. Cleaves Bennett who was a councilor from the 8th district for a number of years, and for two years acted as chairman of the Council, literally "died in the harness" last December. Dr. Bennett had been out all night on a difficult obstetrical case, completed his work, then before leaving the hospital, collapsed, and his death occurred two days later, from coronary occlusion. For many years, he worked hard for the best interests of the society and the profession that he loved so well.

A number of other prominent members of this society for many years were likewise removed from our midst by death during the past year, but time will not permit us to mention all of them. The lives of these men were dedicated to service, and those of us who are permitted to remain active, should endeavor to carry on the work in which each of them was interested. Each of these departed members was opposed to a change in the classical family-physician relationship, and they loved to be considered truly, a family physician.

COUNCILOR DISTRICT MEETINGS

At the recommendation of the Council, district meetings have been held in the various councilor districts during the past three months to consider the social security problems, and for the discussion of other economic subjects of interest to our profession.

Each meeting has been well attended and the councilor of the district has been present at each of these meetings. Dr. Coleman, councilor of the 4th district, held one meeting in Peoria and one in East Moline, on account of the size and population of his district. Both meetings were well attended. It was the pleasure of the president and the secretary to attend nearly all of these meetings, and it is our opinion that many hundreds of our members are thoroughly familiar with the present situation and the attitude of the organized medical profession towards their solution.

OTHER ACTIVITIES

Each standing committee during the past year, has endeavored to give the best possible service to the Society. The legislature now in session, has had some bills introduced which are of vital importance to all members of our profession. Quite recently the "Epstein Bill" has been introduced, to attempt to form a state insurance commission, and bring about a system of compulsory and voluntary health insurance.

Other important measures have been introduced to favor the Osteopaths, and Chiropractors, a bill to legalize corporation practice of medicine, and a Lien bill which is approved by our committee. Every member of this society should do everything possible to aid our legislative committee in opposing bills which are unfair to our profession and the public.

Physicians should endeavor this year of all times, to keep in close touch with their legislators, and show their appreciation whenever the representatives or senator shows their interest in our work.

SUMMARY

The Illinois State Medical Society has gone through another trying year, but the financial and membership reports of your secretary show an encouraging situation. The expenses of the Society have been reduced through a program of economy established by the Council.

We believe that the membership throughout Illinois is thoroughly aware of the present social security situation, and is united in the belief that these social security proposals relative to medical care have over-looked one important detail, social security for those individuals who dispense health service, whom we might term "the forgotten men."

In the opinion of your secretary, this House of Delegates should again endorse the actions taken by the House of Delegates of the American Medical Association at their special meeting on February 15, 16, 1935, in which they reaffirmed their former action in opposing health insurance in all forms.

We should first educate ourselves as to the present needs of our profession, then endeavor to tell our many lay friends what it is all about, so that they shall have our own viewpoints, and they should be thoroughly informed as to the effects that the proposed changes in providing medical care will have on them as patients, and as tax-payers.

Every member of the Illinois State Medical Society should read his Illinois Medical Journal. The committee on medical economics is conducting a special department which should be of interest to all members. If you have a new thought on any economic subject, the chairman of the committee will be pleased to receive it. Constructive suggestions are always solicited by this, as well as all other committees, the officers, and the council.

The secretary's office is always anxious to become a clearing house for the membership, committees, or special services that may be up for consideration at any time. We would especially call to your attention the report of the Auditor who recently completed his 14th annual audit for the Illinois State Medical Society.

FINANCIAL REPORT OF THE SECRETARY

Receipts from County Medical Societies

Adams	$ 423.00	Logan	$ 49.00
Alexander	159.00	McDonough	188.00
Bond	70.00	McHenry	93.00
Boone	7.00	McLean	422.00
Brown		Macon	439.00
Bureau	189.00	Macoupin	63.00
Carroll	112.00	Madison	1,012.00
Cass	75.00	Marion	187.00
Champaign	365.00	Massac	56.00
Chicago Med. Soc.	23,061.00	Mason	84.00
Christiau	150.00	Menard	1[illegible]00
Crawford	162.00	Mercer	70.00
Clark	60.00	Monroe	47.00
Clay	42.00	Montgomery	74.00
Clinton	88.00	Moultrie	21.00
Coles-Cumberland	204.50	Morgan	270.00
DeKalb	302.00	Ogle	143.00
DeWitt	62.00	Peoria	*1,069.00
Douglas	61.00	Perry	110.00
DuPage	402.00	Piatt	
Edgar	72.00	Pike	110.00
Edwards	60.00	Pulaski	
Effingham		Randolph	104.00
Fayette	63.00	Richland	96.00
Ford	135.00	Rock Island	231.00
Franklin	158.00	St. Clair	840.00
Fulton	192.00	Sangamon	765.00
Gallatin		Saline	237.00
Greene	156.00	Scott	
Hancock	112.00	Shelby	84.00
Hardin	40.00	Schuyler	32.00
Henry	208.00	Stark	
Henderson	35.00	Stephenson	239.00
Iroquois	89.00	Tazewell	85.00
Jackson	224.00	Union	175.00
Jasper		Vermilion	259.00
Jefferson-Hamilton	111.00	Wabash	77.00
Jersey		Warren	115.00
Jo Daviess	45.00	Wayne	91.00
Johnson	21.00	Washington	50.00
Kane	646.00	White	55.00
Kankakee	52.00	Whiteside	165.00
Knox	236.00	Will-Grundy	451.00
Lake	442.00	Winnebago	630.00
LaSalle	406.00	Woodford	103.00
Lawrence	84.00	Williamson	14.00
Lee	196.00		
Livingston	92.00	Total	$39,288.50

*Refunded $105.00.

Subscriptions	161.75	Interest Bonds	3,201.25
Exhibits	2,243.75	Journal	14,000.00
Interest, Treas. Account	116.65	Bonds Called	3,000.00
Dividends from Closed Banks	640.12	Miscellaneous	3.75
		Total Receipts	$62.655.78

RECEIPTS AND PAYMENTS

May 1, 1934 to April 30, 1935

RECEIPTS

County Societies	$39,288.50
Exhibits	2,243.75
Subscriptions	161.75
Bonds Called	3,000.00
Interest—	
Treasurer's Account	116.66
Bonds	3,201.25
Journal Advertising	14,000.00
Dividends from Closed Banks	640.12
Miscellaneous	3.75
Total Receipts	$ 62,655.78

DISTRIBUTION OF RECEIPTS

General Fund	$24,691.19
Medico-Legal Fund	9,508.74
Legislative Fund	6,339.19
Journal Fund	22,116.66
Total Distribution	62,655.78
Cash Balance, May 1, 1934	37,740.03
Total	$100,395.81

PAYMENTS

General Fund	$24,472.03
Medico-Legal Fund	7,828.09
Legislative Fund	3,929.11
Journal Fund	18,640.44
Total Payments	$ 54,869.27
Cash Balance, April 30, 1935	45,526.54
Total	$100,395.81

CASH BALANCES, APRIL 30, 1935

General Fund	1,212.19
Medico-Legal Fund	16,892.19
Legislative Fund	17,300.60
Journal Fund	10,121.56
Total Cash Balance	$ 45,526.54

MEMBERSHIP SUMMARY

Members Reported in Good Standing, May 1, 1934		7,000
Dropped During the Year—		
By Death	80	
By Removal	82	
Non-Payment of Dues	640	
By Expulsion	3	
Total		805
Number Reinstated During Year	84	
New Members Reported	681	
Total		765
Members Carried on April 30, 1935		6,970

Respectfully submitted,
Harold M. Camp, M. D.,
Secretary.

FRED N. SETTERDAHL
Public Accountant
224 Robinson Bldg.
Rock Island, Illinois

May 7, 1935.

To the Members of the House of Delegates,
Illinois State Medical Society:

I have audited the following accounts of your Society for the year ending April 30, 1935:

Dr. H. M. Camp, *Secretary,*

Dr. C. J. Whalen, *Editor,*

Miss Jean McArthur, *Secretary Educational Committee.*

The Bank accounts and cash items which represent the accounts of Dr. A. J. Markley, *Treasurer,* have been verified and found to reconcile with the Secretary's accounts.

Interest has been received regularly from your investment fund with no default of interest, and the average market value of the bonds are 96.5 per cent of the par value. The total par value of the bonds held is $71,000.00 and market value as April 30, 1935 is $68,542.50.

All Funds are deposited in the name of the Society and the Bonds are held in Trust by the Depository Bank.

The records have been well kept and in my opinion my detailed report furnished to your council represents the true transactions for the year.

Respectfully,

Fred N. Setterdahl,
Public Accountant.

The Secretary: I have no particular comment to make on the report which appears in the handbook on the work of the Secretary's office covering the finances and membership of the Society. I do believe that this handbook should be looked over very carefully. I believe that the appointment of reference committees to report back on Thursday morning is an excellent plan. Any additional information desired by the Committees can be quickly obtained. The report of the Chairman of the Council, the President, the Chairman of the Legislative Committee, and the very excellent report of the Committee on Medical Education and Hospitals, and the report of the new Committee on Social Security Problems should receive quite a little attention.

REPORT OF THE TREASURER

Year Ended April 30, 1935

To the Members of the House of Delegates—

Your treasurer wishes to make the following report:

RECEIPTS

From Secretary	$42,337.87
From Editor	14,000.00
Interest on Deposits	116.66
Interest on Bonds	3,201.25
Sale of Government Bonds (Called)	3,000.00
Total Receipts	$62,655.78
Balance, May 1, 1934	37,740.03
Total	$100,395.81

PAYMENTS

General Fund	$24,472.03
Medico-Legal Fund	7,828.09
Legislative Fund	3,929.11
Journal Fund	18,640.04
Total Payments	$54,869.27
Balance, April 30, 1935	45,526.54
Total	$100,395.81

All Funds are deposited in the name of the Illinois State Medical Society.

Deposited with the State Bank and Trust Company, of Evanston, Ill.	$ 21,369.57
Deposited with the Nationad Bank, of Monmouth, Ill.	23,457.50
Checks on Hand, returned from Closed Banks	285.00
Checks on Hand, received after Deposit April 30, 1935	513.66
Total	$ 45,625.73
Less Checks Outstanding	99.19
Net Balance as Above	$ 45,526.54
There is held in Trust, at the State Bank and Trust Company, of Evanston, Illinois—Bonds par value	71,000.00
Total Cash and Bonds	$116,526.54

Respectfully submitted,

A. J. Markley, M. D.,
Treasurer.

REPORT OF THE CHAIRMAN OF THE COUNCIL

To the Members of the House of Delegates:

Aside from the regular business of the council there have been many problems for discussion and solution during the past year. Unfortunately, most of these problems offer difficulties as far as solution is concerned, however, the Council has attempted to make a careful study of the problems as they have presented themselves.

The Committee on Medical Economics has had a very busy year and have made some studies relative to adequate medical care in the State of Illinois, and find that medical care is generally satisfactory throughout the state.

A subcommittee was appointed to make a special study of Group Hospitalization. The January meeting of the Council after much discussion adopted the following resolution:

1. The plan must be acceptable to the local county society.
2. The majority of the board of control must be in the hands of the local county society.
3. The organization must not be for profit.
4. The plan must in no way involve medical service.
5. There must be no interference of the relationship between the patient and the physician of his choice.
6. The plan should be open to all hospitals of the community.

The Council did not feel that it was their function to approve definitely Group Hospitalization, but it was their feeling that they would not oppose Group Hospitalization if the plans adhered to in the resolution were carried out. The chairman is of the opinion that this matter should be taken up by the House of Delegates for discussion and perhaps final action as regards the approval of Group Hospitalization.

Another special Committee was appointed to study and keep in touch with the program in Washington relative to medical care under the Social and Economic program in Washington.

A special meeting of the Council was called and a letter transmitted to the President, the members of the House, and Senate, relative to this matter, the contents of which you are familiar with. Since that time a special Committee has been appointed to work in conjunction with the Educational Committee to combat State Medicine and other plans for Socialization of Medicine. Several men have devoted a considerable amount of their time to programs both before Medical Organizations and the lay public to acquaint them with the pros and cons of State Medicine. It is our opinion that this work should be carried on very vigorously during the next year and that much has been accomplished with the lay public along the line desired.

During the year the Committee on Corporations Practicing Medicine carried the case against the United Medical Service through to a victory,—the decision of Judge M. L. McKinley having been printed in the April, 1935, issue of the Illinois Medical Journal.

The Legislative Committee has as usual carried on its work effectively and satisfactorily.

The Emergency Relief program has worked out quite satisfactorily in most instances. We are quite agreed that it is not the final answer to the solution of the problem of the care of the indigent or those classified as on unemployment relief, but it has been as successful as that of any other state up to the present time. Further study of the care of the indigent and unemployed should be carried on with a definite idea of improving on the present methods, and not going back to the Township or County physician caring for the indigent. $3,592,636.02 has been paid to Doctors and Hospitals, in the State of Illinois, since the adoption of this program.

The chairman desires to express his appreciation to all of the members of the council who have devoted so much time during the past year to their work, and also to the various committees for their excellent work during the past year.

With all of the vexing problems presented for discussion the Council has worked in complete harmony and accord during the past year, and this is perhaps somewhat unusual in a period of rapid economic and social changes.

It is not necessary to again state that the Secretary of the Illinois State Medical Society and Editor of the Illinos Medical Journal have devoted much time during the past year, and have lead a vigorous campaign for the preservation of medical ethics, and against the various fads that are being daily presented for curing our economic problems.

Perhaps the most important problem before us is the continued effort to increase our membership, and every member should assume some personal responsibility in this matter for our strength lies in the unity of our membership and in their personal interest in the problems before us. We must not only be interested, but we must study the problem of adequate medical care for the various classes of society, and if there is need for change in caring for certain classes we should attempt to lead the way under plans definitely under medical control.

Respectfully submitted,
R. K. Packard, M. D.,
Chairman of the Council.

Dr. Packard: I just have a few matters to present to the House that were discussed by the Council this morning, one of them having been already disposed of in the appointment of Reference Committees to study and make a report on the various Committee reports.

Secondly, the Council feels that there should be a Committee on Constitution and By-Laws. The Council feels that this should be a Council appointed committee, and we recommend to the House of Delegates that they authorize the appointment of a Committee on Constitution and By-Laws. This Committee will study the Constitution and By-Laws and report back next year on any changes that may be required.

Third, the number of delegates to the American Medical Association has been cut down from ten to nine. The term of office of five delegates expires this year, four are to be elected. It was the opinion of the Council that the odd member should go to either the downstate or Chicago group which had the largest number of paid-up memberships in 1934. The Council recommends that this be a gentlemen's agreement to be referred to the caucus. Under the present membership the odd member would go to the downstate group at this time.

Fourth, the Council approved of the ten point program adopted by the House of Delegates of the American Medical Association on June 12, 1934. The Council feels that this House of Delegates should approve that ten point program. I have a copy of that program, if anyone cares to listen to it it can be given to you.

Fifth, the Council of the State Society also approved the report of the special meeting of the American Medical Association held February 16, 1935, and recommends that the House of Delegates approve the action of the House of the Delegates of the American Medical Association.

Sixth, the question of group hospitalization has been a very serious problem and required a great deal of study and thought. Last year the Council appointed a sub-committee to investigate and report back to the Council on the subject of group hospitalization. The report of this sub-committee which was adopted by the Council is as follows:

Considerable information on this subject has been garnered from various sections of the country where Group Hospitalization is in practice, all of laudatory character. It would appear to this sub-committee that there are many points in favor of such a plan. However, we feel that there is some reason for hesitancy in recommending such a move right now. There are certain pitfalls in the form of schemes for socialization of medicine. Unqualified endorsement of Group Hospitalization might lend encouragement to an allied plan for Group Medical Care at this moment of economic frenzy.

We suggest, however, that any community of members of our Society wishing to inaugurate a Group Hospitalization plan receive hearty cooperation from this Council, and whatever assistance we may be able to give, provided the specifications include the following tenets:

1. The plan must be acceptable to the local county society.
2. The majority of the board of control must be in the hands of the local county society.
3. The organization must be not for profit.

4. The plan must in no way involve medical service.

5. There must be no interference of the relationship between the patient and the physician of his choice.

6. The plan should be open to all hospitals of the community.

Sub-committee on the Study of Group Hospitalization.

The Council recommends that the House of Delegates approve the Council's action and suggests that it be referred back to the Council for any further regulatory measures in addition to these that the Council feels should be imposed.

Seventh, a sub-committee was appointed by the Council to make some investigation of the coroner's office and report back at this meeting. The Council adopted the following resolution which was presented to it this morning:

WHEREAS, the Coroner's duties are both magisterial and medical, each of these requiring a high degree of specialized knowledge; and

WHEREAS, the Coroner has no qualifications except political ability to get votes, not being required to be either lawyer or doctor; and

WHEREAS, the Coroner does nothing that must not be done over again; and

WHEREAS, the office of Coroner is both useless and costly; and

WHEREAS, the press is heartily in sympathy with this move as evidenced by editorials such as "The Office of Coroner" (*Chicago Daily News,* April 7, 1933), "What Price Gangster Protection" (*Chicago Daily News,* October 7, 1933), "An Outrageous Verdict" (*Chicago Tribune,* April, 1933), and many other stories and editorials appearing from time to time;

Be it therefore resolved, that the Illinois State Medical Society go on record as favoring the abolition of the Coroner's office and establishment in its stead of a Medical Examiner who is a pathologist and a graduate of an accredited medical school, to be appointed by the governor or civil service commission, whose duties will be medical examination only to determine causes of death, the legal investigative procedures to be left to the District or State's Attorneys;

And be it further resolved, that copies of this resolution be sent to the State Bar Association and to the Press.

REPORT OF COUNCILOR OF FIRST DISTRICT

To the Members of the House of Delegates:

Medical relief has been a means of bringing medical economics to the attention of all physicians. Members of the medical profession realize more than ever before that it is through the efforts of organized medicine that socialized medicine can be kept under control. More than ever before it is important that every physician become a member of his County Society and contribute actively to the support and direction of that society. No one knows exactly where we are going but the trend is toward socialized medicine and the medical profession should guide that trend in such a way that the practice of medicine shall always be in the hands of medical men, and that it shall be so practiced that it will be a benefit not only to the people who are served, but to the medical profession.

Medical societies have been better attended this year than ever before. Group meetings in which several Counties unite are a common occurrence every month.

The practice of holding a weekly noonday luncheon has found great favor among the doctors of Winnebago County. Every Friday noon the doctors meet for lunch, transact the business of the Society and have a short twenty minute paper by a member of the society. At the monthly County meeting the surrounding Counties are invited and this meeting takes place in the evening preceded by a dinner. Such noonday meetings are practicable only when several physicians live in a community, but wherever it is possible I strongly recommend it for trial either as a meeting for a digest of the current medical literature or for short papers and the discussion of cases.

Pathological conferences are growing more popular, and with good roads physicians often travel fifty to one hundred miles to attend these conferences. I find that more and more post mortems are being performed by competent pathologists. The materials are worked up and always presented in a very acceptable form. Such conferences are a step in advance and mark a decided improvement in progressive medicine.

In spite of our criticisms of medical economics, medicine is progressing. We have an honorable profession with definite ethical standards and I believe that the men of the First Councilor District are doing good work and are strongly supporting the efforts of organized medicine for a better future.

Respectfully submitted,
Edward H. Weld, M. D.,
Councilor First District.

REPORT OF COUNCILOR OF SECOND DISTRICT

To the Members of the House of Delegates:

The Second District has passed through another year of the depression with colors flying. All of the county societies are well organized, have maintained membership and held excellent meetings throughout the year. The programs have been so attractive that there is a very evident growing tendency for the doctors of each society to attend the meetings of its neighboring counties. Each society has its own local problems well in hand. One country has a crippled children's clinic which has been very successful. In several counties the Women's Auxiliary has been organized and is beginning to function quite well.

While the relations between the medical profession and the Illinois Emergency Relief have not been perfect, there have been no serious troubles and the doctors themselves show a desire and willingness to do their part. The impression is that economic conditions in general are improved, although in the larger towns there is still much to be hoped for. The various medical societies and the individual doctors throughout the

district are all taking an active interest in the present threatened radical medical legislation.

Respectfully submitted,
Edgar C. Cook, M. D.,
Councilor Second District.

REPORT OF COUNCILOR OF THIRD DISTRICT

To the Members of the House of Delegates:

Last year our dues were reduced from $15.00 to $10.00. As a result of this and the combined efforts of our good secretary and the individual branch committees, our paid membership increased from 2,712 at the close of 1933 to 3,171 at the close of 1934. The outlook is further improved for 1935 in that the paid membership on April 1 was 2,721, with 921 unpaid members to draw from.

In 1934 our economics committee under the leadership of Dr. Herman L. Kretschmer conducted an extensive survey of the Chicago Clinics, ascertaining the huge numbers of patients cared for in each. It was decided early this year to follow up this work by finding out how many of these were from families who could afford to pay private physicians for their care. $4,000 was turned over to Dr. Kretschmer's committee for this work. The survey is now in progress. 250 consecutive cases from each of five of the larger clinics, not including those patients sent by the Emergency Relief, are to be contacted. It is doubtful just what good such a move may accomplish, but we are told that so far it appears that only a very small percentage of the clinic patients could pay for private care.

The Illinois Medical Practice Act has again stood up in Cook County courts. The United Medical Service has been ordered closed for violation of the Act. They are still in operation, however, pending appeal to the Supreme Court. It is hoped that the day is near when all corporations practicing medicine as such will be prosecuted.

Group Hospitalization seems assured for the Chicago district, as funds have been promised the Chicago Hospital Association for such an organization. The cooperation of the Medical Society is sought; but the plans will probably go ahead with or without our control.

Respectfully submitted,
John S. Nagel, M. D.,
R. K. Packard, M. D.,
L. E. Day, M. D.,
Councilors Third District.

REPORT OF COUNCILOR OF FOURTH DISTRICT

To the Members of the House of Delegates:

As in previous years, the Councilor of the Fourth District has attended all local and special meetings of the Council, and has also attended county meetings in this District whenever requested to do so.

A report of the activities of the component Societies in this District would be almost a repetition of the reports of previous years, in that all Societies are represented by their regular allotment of officers; larger Societies are having excellent meetings; the smaller Societies often times only having organization meetings. At one small Society it was necessary for the Councilor to be present to have a quorum so that the by-laws could be altered with a smaller number required to constitute a quorum in the future.

It appears that the Medical Relief work is becoming fairly well settled in this District and while there is considerable complaint about the inadequacy of funds, in the majority of counties it seems to be fairly satisfactory and most of the members contacted seem to agree that while unsatisfactory in many ways, it is probably the best arrangement that can be obtained at the present time. Very few seem willing to go back to the months before the Relief system was inaugurated.

The Fourth District Councilor has served on the Financial Committee of the Council, the Veterans' Service Committee and also on the newly formed Committee on Social Security Problems. It is thought that this last Committee is of considerable importance and a great deal of time and work have been put forth on it, with an attempt being made to more or less outline and concentrate the rather voluminous information at hand, regarding health insurance. It is felt that with this information available in a form that can be easily used, key speakers from each county can put the medical side of these questions before as many organizations as possible and that by doing this we may be able to more than counteract some of the adverse influences that are working against us.

District meetings have been held in Peoria and Rock Island which enabled our President and Secretary, Dr. Neal, and some of our other good speakers to get this information in a direct manner to a considerable number of our members. It is thought that these meetings will accomplish a very definite amount of good.

Respectfully submitted,
E. P. Coleman, M. D.,
Councilor Fourth District.

REPORT OF COUNCILOR OF FIFTH DISTRICT

To the Members of the House of Delegates:

There has been some difficulty in securing the information from the various counties in the Fifth District as to their activities, etc. In response to a questionnaire sent to all the societies in the District, we have the following reports:

DeWitt County: Membership, 13; one delinquent member; no gain or loss in membership; 13 meetings held during the year, twice a month, with the programs usually by the local men.

Logan County: Membership, 12; one gained and two lost during the year; one meeting held during the year.

Mason County: Membership, 11; no delinquents; one gained, no loss; one meeting held during the year.

Menard County: Membership, 2; four delinquents; no meetings held during the year.

McLean County: Membership, 73; three delinquents; six gained and two lost during the year; ten meetings held during the year, with good programs and attendance of more than fifty per cent.

Montgomery County: No report received.

Sangamon County: Membership, 113; three delinquents; none gained, one lost; twelve meetings held during the year, good attendance.

Tazewell County: Membership, 18; four gained, none lost.

The condition of a county medical society depends much upon its officers. Some of our societies did splendid work last year, but this year with a new set of officers have had infrequent meetings with very little activity upon the part of their membership, while others have been even more active than usual. It is encouraging to note from the report of one society that they have put on a membership campaign, to see that all eligible physicians in their county are kept in step with organized medicine.

Every county medical society has been confronted with many problems, some that have existed for a period of years, but have only become acute since the economic situation has brought them more vividly to the attention of every member of the profession, so it has become necessary to make all sorts of adjustments in the doctor's life and that of the care and education of his family. With patience and intense and active work with the various committees of the Society, these problems will meet with the best solution for the conditions in each locality.

In one of our counties, they have never signed the plan adopted by the Illinois State Medical Society in an agreement with the Illinois Emergency Relief Commission, but have continued to care for their paupers and indigents through their local supervisors, which in many instances has always proved eminently satisfactory. Where there are coal mines and factories, the conditions have been different, and the help from the Emergency Relief has been greatly appreciated by the doctors who have had a difficult task in meeting all their demands.

I am taking this opportunity to suggest to the counties in the Fifth District the importance of electing men who will give much of their time and consideration to the disturbing problems of the present; also the necessity and importance of large and well-functioning committees under the direction of men who will give much of their time and study to the many questions that are disturbing organized medicine.

Many abuses have gradually grown up in county medical societies over a period of years that are now demanding economic consideration and solution by hard-working and fair-minded committees with a determination to find a solution not only for the medical profession but for their communities as well. Only by these suggestions can the county unit be kept intact and its membership strengthened, for it is only in numbers and unity of purpose that local difficulties can be overcome.

A report of the special reference committee of the House of Delegates of the A. M. A., which was called in session in February, with the resolutions adopted at the last meeting in Cleveland, furnishes an excellent guide for the problems that confront us. These recommendations particularly apply to the work that is being considered by the Committee on Economic Security that was appointed by the President of the United States.

It is our opinion, if we are to control any plan that is adopted for the care of those who are unemployed or with low earning power, that we must adjust our plans to these conditions if we are to continue, as in the past, to administer medical care to these unfortunates instead of facing the possibilities of socialized medicine. I have been in hearty accord with the philosophy of the President of our State Society in meeting the problems of state medicine in his talks which have been made largely throughout the state in the past year.

Respectfully submitted,
S. E. Munson, M. D.,
Councilor Fifth District.

REPORT OF COUNCILOR OF SIXTH DISTRICT

To the Members of the House of Delegates:

As Councilor of the Sixth District, it is my pleasure to report the condition of medical affairs in this district.

An effort has been made on my part to contact all physicians in the district during the past year through attendance at their meetings. In most of the counties the district meetings are held regularly and usually a guest speaker addresses each society at these meetings. The meetings are well attended and a great deal of interest is taken in view of the fact that the depression is still on. However, in most of the counties conditions are improving. Birth Control, Health Insurance, Maternity Guild's agents have been busy but have not been meeting with much success.

A few counties hold meetings somewhat irregularly. In Brown County where there are only a few members, I am sorry to report they are about to give up their charter, the members joining neighboring societies. Only one other county in the district has no society, but the physicians in these counties attend regularly the meetings of neighboring societies, most of them joining outside the District.

The economic conditions are still the most prominent topic of conversation at most of the meetings. All agree, however, that conditions are better than for the past two years.

The emergency relief program is being carried out in all of the counties quite satisfactorily. While the doctors are not getting the remuneration that was hoped for at the beginning, they appear to be satisfied and I am proud to say that all patients are receiving adequate medical care.

The Sixth District is still without objectionable clinics.

Respectfully submitted,
Thos. B. Knox, M. D.,
Councilor Sixth District.

REPORT OF COUNCILOR OF SEVENTH DISTRICT

To the Members of the House of Delegates:

The past year has convinced your Councilor that the physicians of the Seventh District are the most courageous group of men it has been his pleasure to meet. While the depression has affected adversely the eco-

nomic status of most all of our members during the past three years, the physicians have been the first to adjust themselves and have done more than their share to relieve the suffering in their communities. Cooperation with the Federal set-up has been very commendable.

This year has seen very few changes in the condition of medical affairs in the district. The Councilor has visited all societies when invited to do so. When there was no specific request no visit was made. He has attended all Council meetings and Special Committee meetings. A few of the larger societies in the district have done very constructive work along economic lines and many regular meetings have been devoted to a careful study of the subject. Most members are ardently opposed to any attempt to socialize medicine, as advocated through the press and over the ether (many of those advocates would be much better under the ether), but are willing to face the whole problem with an open mind.

Scientific meetings have been high grade, and well attended. The "inflated cash card" has penetrated the "dust clouds" of financial stringency and a great deal of the joy of service has returned. The physicians of the Seventh District have thoroughly demonstrated that they "can take it."

Respectfully submitted,
I. H. Neece, M. D.,
Councilor Seventh District.

REPORT OF COUNCILOR OF EIGHTH DISTRICT

To the Members of the House of Delegates:

The condition of the county medical societies in the Eighth Councilor District is fully as satisfactory, if not better, than one year ago. The members are paying their dues more promptly and there has been some increase in the membership in a number of the counties. Every county in the district has a medical society, however, Coles and Cumberland Counties have a joint society which is quite active and holds regular monthly meetings. Clark, Jasper and Richland County Societies do not meet regularly due to the small number of physicians in each county but many of the members take advantage of the programs given in adjoining counties. All the other counties in the district have active societies and hold their meetings regularly each month, usually having outside speakers to furnish the program.

The Eighth Councilor District is located along the eastern border of the state, over one hundred miles in length, with Champaign and Vermillion Counties on the north and Richland and Lawrence Counties on the south, and extends west from the Indiana line about fifty miles. In order to save time and expense your Councilor conceived the idea, with the approval of the President and the Secretary of the State Medical Society, of holding a joint meeting of the counties in the lower part of the district and another joint meeting of the counties in the north end of the district. This gave an opportunity to contact the members in every county.

The meeting in the south end of the district was held at Robinson, November 8, 1934, the regular monthly meeting date of the Crawford County Medical Society. This society showed a fine spirit of cooperation, acting as host to the joint meeting of Lawrence, Richland, Jasper and Clark Counties. President Charles S. Skaggs was the speaker of the evening and gave a very interesting address on "The Value of Organized Medicine." Each of the counties was well represented, with a total attendance of about fifty. The doctors present showed a very keen interest in the meeting and the evening proved very worth while.

The joint meeting in the north end was held at Danville, April 2, 1935, at Hotel Wolford, with the Vermilion County Medical Society acting as host to the members of Champaign, Douglas, Edgar and Coles-Cumberland Counties. About one hundred were present and they were very enthusiastic over the program, presented by President Charles S. Skaggs, Secretary Harold M. Camp and Dr. E. S. Hamilton, Chairman of Medical Economics Committee. Dr. Hamilton gave a very interesting talk on the subject of "Some Economic Problems of the Medical Profession," and told of the activities of the Medical Economics Committee of the past two years. Dr. Camp spoke on the subject, "Social and Economic Security Legislation," and gave a great deal of information that was enlightening to those present. Dr. Skaggs gave a fine presentation of the question of "Maintaining Medical Standards," which was a very fitting ending to the evening's program.

It is my impression that if joint meetings were held annually with special programs on subjects vital to the medical profession, they would meet with a greater response from the membership in each district.

The care of the indigent and the care of the unemployed under the Emergency Relief are still problems in every county and are not being handled entirely satisfactorily. As stated in my 1934 report, I feel that some definite policy should be worked out by the State Society regarding the care of the indigent as well as Contract Practice that may be applied throughout the State.

Respectfully submitted,
C. E. Wilkinson, M. D.,
Councilor Eighth District.

REPORT OF COUNCILOR OF NINTH DISTRICT

To the Members of the House of Delegates:

The Ninth District is located in the southeastern part of the state, comprising the Counties of Jefferson, Franklin, Williamson, Johnson, Massac, Pope, Saline, Hamilton, Wayne, Edwards, Wabash, White, Gallatin and Hardin.

There are eleven organized societies in this district. Jefferson and Hamilton are combined into one society as are Hardin and Pope. The Jefferson-Hamilton County Society, the Franklin County Society, Williamson County, and Saline County all have good memberships and all are very active having regular meetings that are well attended. The scientific programs of

these societies will compare favorably with the best programs held in any society of the state.

In the other counties the membership is small, and they have meetings only occasionally. However, the physicians in these smaller counties attend the scientific programs held in the nearby counties that have regular monthly meetings.

During the past year the Southern Illinois Medical Society met in the Ninth District for a two day session at Mt. Vernon and was well attended by physicians from all over the Ninth as well as the Tenth Districts. The pediatric group from Chicago and the north end of the state also met in the Ninth District at Benton during the past year and this meeting too was well attended, the number of physicians present being approximately one hundred and forty. There is friendly cooperation between the physicians in the Ninth District, and we have no feuds or bickerings and have few that are unethical.

The good times promised by the new dealers have not yet reached the physicians of Southern Illinois, and we are having our troubles in collecting dues and keeping up our membership.

Respectfully submitted,
Andy Hall, M. D.,
Councilor Ninth District.

REPORT OF COUNCILOR OF TENTH DISTRICT

To the Members of the House of Delegates:

Interest in Medical Economics has increased greatly in this district during the last year, probably the thought of State Medicine has thrown a scare into many of us. However the profession is not only thinking of their own interest but that of the public as well. All of our counties have increased their interest and attendance at their medical meetings.

Washington County had several meetings addressed by home talent, no deaths and membership as before.

Randolph County had a slight increase in membership, a decided interest, and held eight meetings during the year. An influx of young blood has had a good effect in their organization. They lost one member during the year by death.

Perry County Medical Society held nine meetings the last year. Speakers were all from out of the county. Perry has had an increase of two members during the past year. Dues are all paid to the State for 1935.

St. Clair County had ten meetings during the past year, largely addressed by men from outside of the county. The St. Clair County's usual banquet held in January was dispensed with this year due to the death of Drs. C. F. Wilhelmj and Harvey Smith at that time. Besides these the society lost Drs. M. Earl Brennan and John Fulgham, all of these men were from East St. Louis. The society gained seven new members during the year.

Alexander County Medical Society held meetings through the year excepting the summer season. Doctors from the surrounding counties were invited. No deaths occurred among the members, but one moved from the county.

Jackson County had nine good meetings during the year. Speakers were all from out of the county. A noticeable increase of interest in Medical Economics and Medical Legislation prevailed at every meeting.

Lack of detailed reports from Union, Pulaski, and Monroe Counties prevent any further remarks on their conditions.

Respectfully submitted,
J. S. Templeton, M. D.,
Councilor Tenth District.

REPORT OF COUNCILOR OF ELEVENTH DISTRICT

To the Members of the House of Delegates:

During the year of 1934-1935 the Eleventh Councilor District has been very active and all component societies are functioning nicely. Your Councilor has visited the majority of the counties and except for the call on his time as Chairman of the State Committee on Medical Economics would have visited all of them. In every county, the doctors are alive to the problems menacing the future of their profession and are making every effort to correct the local problems and at the same time lend their aid to those working on the state and national ones.

The DuPage County Society is very active. They hold regular monthly meetings at various parts of the county, thereby making it easier for their membership to attend the meetings. They have shown great interest in local problems, particularly Contract Practice with its attendant troubles of cutting the fee bill and underbidding for work. Their results are being watched by their neighboring counties. The members work together nicely and their membership is ahead of last year.

The Will-Grundy County Society is one of the outstanding societies of the state. Ably officered and with an enthusiastic membership they hold weekly meetings, at which the leading men of this part of the country appear. An annual program reads like the prospectus of a postgraduate school. The result of a program of this sort is reflected by the high type of physician in the society. Membership in this society is at a high level. They are meeting their local problems in fine shape. They have practically recovered from the financial difficulties resulting from money lost in closed banks, which resulted in their dues for 1933 being carried over. I believe they are in the best shape they have been for three years and under able leadership should continue to progress.

The Kankakee County Medical Society continues to have practically the entire available membership of the county. They have regular monthly meetings, addressed principally by outstanding physicians from Chicago. They held a Tumor Clinic, presided over by Dr. Joseph Colt Bloodgood. The evening meeting, to which the public was invited, addressed by Dr. Bloodgood, was one of the outstanding events of the year. There is no particular local problem before the society. The members are all greatly interested in economic and social problems, both state and national, as they affect the medical profession.

The Iroquois County Society has carried on in nice

shape this year. Their membership is about the same as last year. The attendance at the regular meetings has been good. Most of the meetings have been addressed by men from Chicago. Apparently their disagreement with the Illinois Emergency Relief has been settled and the care of those on relief has been carried on in a satisfactory manner, since that time.

Ford County Society holds no regular meetings, but has held several during the past year, as well as showing a great interest in the meetings of the surrounding counties. Your Councilor has met members from Ford County at Pontiac, Danville and Kankakee. Their membership is low, but includes practically all of the available material in this, a rather typically agricultural county with no towns over 2,000 in population.

The district had the pleasure of holding the first district meeting to discuss the current economic problems. Dr. John Neal of Springfield and Dr. Harold Camp of Monmouth talked on current problems. In spite of a foggy night there was an attendance of around 100 men, who listened to two most excellent educational talks on what is going on in the state and nation, which may influence the practice of medicine. All present left with a much better idea of what is proposed and also with some definite ideas as to what the medical profession can do to oppose proposed changes. Since that time similar meetings have been held in Peoria, Rock Island, and Danville. It is to be hoped that at least one similar meeting will be held in every Councilor District of the state.

There has been no special problem in this district during the past year. Work under the Illinois Emergency Relief has been carried on in a manner satisfactory to the Relief Officials, although only partially satisfactory to the profession in some of the counties. There seems to be no really satisfactory solution to this problem at this time. It is to be hoped that this experience will help us in showing the fallacy of successful medical care guided by any other than the medical profession.

Your Councilor has attended every meeting of the Council as well as the Committees of which he is a member. The Committee on Medical Economics has taken considerable of his time, which might otherwise have been given to strictly district affairs. However, he hopes that this time has not been wasted and that some good to the entire profession of the state has resulted. There are still many great problems for this committee and if he is on the same another year, he hopes to accomplish much more.

Respectfully submitted,
E. S. Hamilton, M. D.,
Councilor Eleventh District.

REPORT OF THE COUNCILOR AT LARGE

To the Members of the House of Delegates:

At the Annual Meeting of the House of Delegates in Springfield in 1934 a change was made in the By-Laws appointing the retiring president as a councilor at large for a period of three years. Prior to that time the president of the state society, after he had completed his year's activity, was in no way active in the general state society, nor did he have any occasion to utilize the experience he had as president to further the cause of his society in the state council. It was felt that when a doctor had been active as president-elect and as president of the society, he should, by reason of his contacts in the various parts of the state in the county societies, have gained such information as would make him a valuable member in the Council activities.

I am happy to make this report as your first councilor at large, and I am more than happy to have been president during the year when the House of Delegates saw fit to make this change in the By-Laws. I have taken a great deal of pleasure in attending the Council meetings throughout the year and in being able to take part in the deliberations of the important undertakings.

I wish to assure you that this year has not been an easy one for the councilors from the various districts. There have been so many difficult problems to solve and so many obstacles to overcome that it was necessary for your representatives to have their feet squarely on the ground at all times.

With you, I look forward to a brighter future for the practitioner of medicine. I feel that some of our most serious problems are near solution and that in the future the welfare of the doctor and his patients will be safeguarded to the utmost.

Respectfully submitted,
Philip H. Kreuscher, M. D.,
Councilor at Large.

REPORT OF PUBLIC RELATIONS COMMITTEE

To the Members of the House of Delegates:

Last year at the request of the old Public Policy Committee, the name of this committee was changed to the Committee on Public Relations. The report also included a request that with the proper set up, the Public Relations Committee be empowered by the House of Delegates to aid members of the Society to collect contested claims against insurance companies, for the care of injured employees who are insured.

During the past three years, many insurance companies have been insisting that the physicians' bills are too high, and not consistent with the usual industrial charges for service. On two or three occasions which have come to our notice, the insurance company has informed the doctors that their charges were in excess of those approved by the state compensation commission. Our investigations have also elicited the information that it is not a question of what the physician is charging for his services to injured employees, but when his itemized statement is submitted to the company with the charges made in strict conformity to the fee schedule approved in the community, he is informed that the correct charge should have been a sum approximately 33⅓ per cent. less than the bill rendered.

Owing to the fact that physicians are generally like all other business and professional men at this time, and need money badly, too many of them have been willing to accept the reduction in their bill for cash.

The Illinois Industrial Commission does not have a

fee schedule which governs the charges for medical or surgical care to injured employees, and it has invariably been the decision of all courts that the fees customarily charged in that community, shall prevail in the cases where the contest is carried to the courts.

Soon after the annual meeting last year, our committee received official stationery with the name of our general counsel appearing on it, and announced through the Illinois Medical Journal that we were prepared to take up their contested claims. We announced that the complaining physician must be a member in good standing of his county medical society, that his services in the case should conform to those approved methods, and that his charges must conform to those generally made in that community. In cases where fee bills were not available, a statement preferably from the county society secretary attesting the claim and giving assurance that our requirements were all met, were solicited.

We have had a few cases referred to us, and in each case we have written the insurance company insisting that the bill be paid in full, and same has been promptly done. One large insurance company which insures many concerns, has assured us that it is their desire to cooperate in these cases, and pay the fees approved by the county medical society.

We believe that this service which is available to all members of our society should be used more often by the membership, and it is our opinion that within a short time, the insurance companies will cooperate more thoroughly with the society, and these complaints will be gradually eliminated.

We again wish to state that the State of Illinois does not have a fee schedule governing the charges to be made in caring for industrial cases, and we want to urge the members of the Illinois State Medical Society in caring for injured employees who are insured, to make the charges for service in conformity to the established charges for such service in that community.

Mr. Rawlins, our General Counsel, has permitted us to use his name on our official stationery, and although we have had no occasion to refer any controversial case to him, we feel that his cooperation will be of material benefit to all of us in the future.

Respectfully submitted,

Geo. Michel, M. D.,
Charles J. Drueck, M. D.,
W. S. Bougher, M. D., *Chairman.*

REPORT OF MEDICO-LEGAL COMMITTEE

To the Members of the House of Delegates:

During the year from May 1, 1934, to May 1, 1935, the Committee reports that there have been thirty-nine (39) new suits started and thirty-seven (37) cases disposed of. This compares with twenty-nine (29) new suits started between May 1, 1933, to May 1, 1934, with a disposal of thirty-one (31) cases during that period.

Of the thirty-nine (39) new suits started during the past year, fifteen (15) have come from down state.

Twenty (20) claims have been reported during the year, eleven (11) from Cook County and nine (9) from down state.

At the present time there are two (2) more cases pending than there was a year ago.

The expenses, including the cost of trials and investigation of cases, have increased during the past year, due, in part, to the fact that many physicians and surgeons have discontinued the carrying of insurance.

The class of cases most numerous and most difficult to defend have been cases of alleged x-ray or radium burns, of alleged improper issuance by physicians of insanity certificates, and the alleged failure on the part of physicians to take x-rays in the first instance or sufficient X-Rays for properly checking up.

Respectfully submitted,

J. R. Ballinger, M. D., *Chm.,*
R. O. Hawthorne, M. D., *Secy.,*
Oscar Hawkinson, M. D.,
C. U. Collins, M. D.,
Arthur H. Geiger, M. D.,
Walter Wilhelmj, M. D.,
Medico-Legal Committee.

REPORT OF LEGISLATIVE COMMITTEE

To the Members of the House of Delegates:

The social unrest and economic uncertainty have influenced profoundly the character of legislative activity this year in Washington and at Springfield. Although more initiative toward accepting and exercising their responsibilities and duties as the direct representatives of the people has been observable on the part of Congressmen and Assemblymen than two years ago the trend of legislation has been strongly toward shifting power and authority to the executive department of government. This has resulted not so much from a will to abdicate as from the disturbed social conditions which have frightened legislators on the one hand and created a division of public interests on the other, leaving no clear-cut uniform popular demand. The cry has been for anything that will remedy the situation.

There has, moreover, been a distinct current toward socialism that favors selfish group interests at the expense of general public good. Much of the proposed and enacted legislation tends toward the regimentation of business and professional life. The elected representatives have manifested great concern for vocal elements in the population which seek economic or other advantages.

This trend in legislative matters, which attempts to satisfy with doles or pensions, every organized group that seems to have a grievance against economic conditions, has caused many competent observers to express grave concern about the immediate future of the American form of liberal government. They believe that undercurrents of political forces like those which undermined the liberal popular governments of Greece and Rome are swifty gathering momentum. Democratic government was lost in both Greece and Rome under the influence of social unrest which permitted a swing of power from elected representatives to one man executives. The trouble in each case was that the more intelligent classes allowed political trends that favored selfish groups to progress too far before it was checked. This led inevitably to unbearable tax burdens that ended

in the complete disruption of liberal government. Once lost it required a thousand years for democratic government to re-establish itself upon the earth.

A distinct trend toward concentrating power in executive hands is present not only in America but in Europe as well. Germany and Italy, both of which enjoyed a high degree of representative government, are tasting the bitter fruits of yielding to administrative officers the power of legislation. In both of these countries individual freedom has been destroyed and cultural progress has been sacrificed for what appears to those peoples to be an immediate economic gain for the masses.

These observations emphasize the essential importance of public interest in governmental matters, especially on the part of the more intelligent classes. Every physician and every other citizen who believes in and cherishes the fundamental principles of liberalism and the traditional American conceptions of individual freedom must assert himself in order to keep the state and federal governments on an even keel during these trying times. There can be no compromise with vocal minority demands for ill-considered socialistic schemes if we are to preserve the integrity of American freedom and liberalism.

At Springfield the General Assembly has devoted most of its time and attention to legislation involving relief, taxation, pensions, liquor traffic regulation, motor vehicle control and workmen's compensation schemes. Scores of bills have been introduced on each of these subjects. Some of them would affect the medical profession directly. All of them would affect the medical profession profoundly.

The grist of bills relating directly to medical practice has been fully up to that which has been offered heretofore. No bill of outstanding importance to the profession, either favorably or unfavorably has become a law up to the time this report is written. Measures of the greatest importance to the profession are pending, however.

Some half dozen of these would seriously affect the practice of medicine by lowering standards, impairing individual freedom of action and by disturbing the confidence between doctor and patient. These bills may be described briefly as follows:

(1) H. B. 425 would legalize the practice of medicine by corporations. Few things would be more detrimental to the respectable practice of medicine than a law of this kind. It would lead to blatant competitive advertising, make of physicians a payroll profession, encourage the exploitation of proprietary medicine and interfere with the confidential relations of patient and physician. This bill has been referred to the Committee on Public Welfare where it now reposes. The likelihood of passage at this session is remote. The probability is that efforts in this direction will be renewed with increasing vigor so that organized medicine must be prepared to fight the proposal for years to come.

(2) H. B. 814 is somewhat similar in that it would legalize the operation of non-profit hospitals by corporations of a charitable character which would be free to develop insurance schemes for the payment of hospital bills. This bill is too brief and in too general terms to permit satisfactory administration. This bill is in committee.

(3) H. B. 937 would set up a scheme of compulsory health insurance. It appropriates $100,000 for administrative purposes. It would create a state health insurance commission, a general advisory council of twelve members and a medical advisory council of nine members, all appointed by the Governor. Manifestly this scheme would become a system of political bureaucracy of the first magnitude.

To finance the scheme every employer would be taxed at rates varying from one and one-half to three and one-half per cent. of his payroll, scaled according to wages and all employees would be taxed at rates varyiny from one to three per cent. of his earnings. The State would contribute an amount equal to one and one-half per cent. of the wages paid to employees. The system would apparently apply to wage earners and salaried employees drawing $60 or less per week. It implies that our people are not sufficiently intelligent to manage their own health affairs, even those in the upper salaried income brackets, and that consequently the State must step in and impose medical care upon them whether they like it or not.

The commission is given wide discretionary powers under this bill which would permit the extension of free medical service to any or all parts of the State and the construction and operation of hospitals, laboratories, etc. Two excerpts from the bill suggest its far reaching provisions. The commission would have the power, among other things:

(a) "to appoint or employ district and local finance and medical supervisors and managers. . . ."

(b) "to supervise, control and make inquiries into the administration of this Act and the furnishing and payment of the benefits therein provided and to do all things it deems necessary or proper to improve the same throughout the State or in any part thereof."

Other provisions of the bill give the Health Insurance Commission powers and duties which overlap the responsibilities and functions of the State Department of Public Health.

Regardless of its chances to become a law at this session of the Legislature this bill represents the trend of thought which has gained substantial momentum and force. To prevent the enactment of ill considered and impracticable bills, such as this one in the field of health insurance, will require well organized effort which includes not only physicians but other elements in the population who appreciate the dangers of such schemes.

This bill was introduced on May 1 and is now in the hands of the Committee on Judiciary.

(4) H. B. 692 would set up an independent examining board for osteopaths. It is before the House on first reading with a recommendation for passage from the Committee on efficiency and economy. Your Legislative Committee has informed the medical profession of the objections to this bill. It would, of course, lower the standards of medical practice, break down the present excellent system of licensure and open the way for a multiplicity of examining boards for all sorts of cults.

(5) S. B. 238 would set up an independent examin-

ing board for chiropractors and is open to the same objections as relate to osteopaths. This bill is still in Committee.

(6) H. B. 780 would grant without examination a license to all chiropractors who have practiced for three years in Illinois and to license holders in other States. It also lowers training requirements. Manifestly a vicious bill. The bill is in committee.

(7) H. B. 781 would set up qualifications of practitioners and regulate the licensure of chiropody. The objection to this bill is that it would ultimately require four years of training which would encourage chiropodists to seek legislation permitting them to practice medicine generally. Two years training is quite ample for this profession.

(8) S. B. 363 is identical to H. B. 781 and subject to the same objections.

On the other side of the picture is one bill which the medical profession favors. This is H. B. 779 which has gone no further than the Committee on Judiciary. It would give to medical and other practitioners and hospitals for their services a first lien on moneys available to a person injured through no fault of his own. It aims primarily at giving a practitioner a chance to collect for services rendered when insurance or damage claims are available in accident cases.

Your Legislative Committee has been particularly active in connection with the bills discussed. When occasion required the profession of the State was circularized and requested to take appropriate action. That this method has been effective is indicated by an incident that occurred at a committee hearing on one of the cult bills. One committee member let it be known in no uncertain terms that there were several hundred physicians in his district and only three osteopaths. He declared his opposition to the bill in deference to the medical profession in whom he expressed great confidence. That representative undoubtedly had been contacted by a large proportion of the doctors in his district in response to the suggestion of your Legislative Committee.

Various other pending bills would affect the medical profession directly although less profoundly. One would require the annual registration of physicians along with various other professions and practitioners with a renewal fee of $1 and would make the revenue therefrom available for the administration of licensure activities only. Several measures relating to the regulation of beauty parlors and beauty culture, optometry, embalmers, barbers and funeral directors have been introduced. What is known as the uniform narcotic bill has passed the House and is on second reading in the Senate. A bill requiring health certificates of applicants for teaching in the public schools is on second reading in the House as is also a bill requiring a medical examination of both parties to a proposed marriage fifteen days prior to the issuance of a license. The sterilization of certain mental patients in State hospitals under carefully regulated conditions would be authorized by a bill which is now on first reading in the House with favorable committee recommendation. A bill prohibiting false and misleading advertising of all kinds is on second reading in the House. Numerous bills that would regulate foods and drugs are pending. Outstanding among these is one that would levy a 10 per cent tax on the gross sales income on patent and proprietary medicines and another that would create a State bureau of chemistry, the duties of which would be to ascertain and make records available regarding the ingredients of patent and proprietary cosmetics, medicines and drugs. Relating to health and safety there are bills that would require exhaust systems for dust removal, prohibit the taking of food into certain hazardous industrial establishments, regulate spray painting, extend the powers of supervision over milk pasteurization and prohibit the use of cracked or broken utensils in hotels, restaurants, etc.

More than a dozen bills affecting the Workmen's Compensation Act are pending. Most of these liberalize the amount and facilitate the obtaining of claims. It would seem that a more practicable policy in the long run would be to set up in the State Department of Public Health machinery which could work with industry in controlling industrial and occupational hazards and leave the matter of compensation for alleged occupational diseases in the hands of the civil courts.

Some dozen or more bills would set up old age and unemployment insurance schemes. These range from fantastic impracticable measures down to more or less reasonable proposals which involve the possibilities of heavy taxation in most cases. Nearly 200 bills on taxation have been introduced. These ranged from the much advertised 3 per cent sales tax proposal which has been repeatedly defeated in the House to a substitution of a one per cent tax on all incomes for the present system of real and personal property tax system. Of particular interest is a bill introduced simultaneously in House and Senate and placed on first reading without reference to Committee which would levy a 3 per cent tax on the gross incomes of practically all professions and many people in other occupations.

Concerning alcoholic beverages and the regulation of the liquor traffic no less than 34 bills have been introduced. About a dozen measures relating to motor vehicles, ranging from a fifty per cent reduction in license fees to the requirement of drivers' license, are pending.

A half dozen bills pertaining to pensions for the blind are still pending. One of these which has passed the House and is in a Senate committee would authorize an excess tax levy for blind pensions. A bill that has passed the Senate and is on first reading in the House would set aside immediately in the Treasury out of general revenue funds $533,700 for the payment of blind pensions. Other bills would throw the whole burden of pensions for the blind on the State.

Numerous other legislative proposals of more or less direct significance and importance to the medical profession and of profound importance to the democratic form of government are found among the approximately 1,500 bills which have been introduced.

Under prevailing circumstances your Legislative Committee has found it necessary to be unusually alert and industrious with respect to measures of primary importance to the profession. In general the support of physicians and their prompt and effective response to special requests for action has been admirable. Social reform

is in the air, however, and will not down with the defeat of this or that bill. Usually it requires about ten years to place upon the statute books a law of broad social significance. The future, therefore, holds out the probability that such proposals as the health insurance scheme and the legalizing of medical practice by corporations will be up for legislative consideration with renewed strength and increasing pressure. This outlook makes imperative a persistent and well organized program on the part of the medical profession which will gain popular support for the preservation of the American form of representative government and the individual freedom which goes with it.

Respectfully submitted,
Edward Bowe, M. D.,
Thomas P. Foley, M. D.,
John R. Neal, M. D., *Chm.,*
Legislative Committee.

REPORT OF MEDICAL EDUCATION AND HOSPITALS COMMITTEE

To the Members of the House of Delegates:

Two national organizations hold meetings each year to consider the problems of medical education. The Association of American Medical Colleges is concerned primarily with the pedagogical phases of medical education. Every medical school is confronted with the problem of selecting from the huge list of applicants, those best fitted to enter the profession of medicine. It is much more difficult to enter a medical school now than it was thirty or forty years ago. This is true not only because the number of applicants has increased several hundred per cent during this time, but also because the medical course is now much more difficult and the practice of modern medicine is much more exacting both from a scientific and from an economic point of view. The deans of the medical schools make every effort to admit only those young men and women who have the mental ability and the moral qualifications to be a credit to the profession after graduation. This task is becoming more and more difficult. Each member of the medical profession can do much to aid his alma mater and the profession of the future by definitely discouraging young men who, he believes, lack the mental and moral requirements for successful (in the highest sense) practice of medicine, from even applying for admission to any medical school.

The Council on Medical Education and Hospitals of the American Medical Association, in its annual meetings deal with more practical phases of medical education as it affects organized medicine and the profession as a whole. One of the difficult questions that has been discussed repeatedly before both of these national organizations is, "Should the number of medical students be restricted?" At the meeting of the Council on Medical Education and Hospitals this year, President Raymond Walters, of the University of Cincinnati, presented a very sane discussion of the problems involved. This address was published in the *Journal of the American Medical Association* for March 30, 1935. We recommend the reading of this address to every one interested in medical education and the future of the profession.

There is a great need in Illinois for high grade postgraduate teaching. This cannot be done satisfactorily by the regular medical schools. It has been suggested this needed work should be done by the State University. In those states in which this plan has been tried there have been some unpleasant repercussions. The Cook County Graduate School of Medicine in affiliation with Cook County Hospital was established a few years ago and its facilities are now being extensively used in spite of economic conditions. This is a non-profit organization and none of the clinical teachers receive any remuneration. The faculty of the School is composed of the members of the Staff of the Cook County Hospital, the only group of men who have access to the abundant clinical material in the wards of that great hospital. This Postgraduate Medical School has potentialities for a truly great institution and the profession of Illinois may well look to it for opportunities for high grade work.

There is a special need for adequate postgraduate instruction on cancer. Because of efforts in lay education on this subject by several organizations, patients are now seeking advice concerning possible cancer in much earlier stages of the disease. The cancer patient is forced to seek medical aid at some time during the course of the disease. The physician should welcome this changed attitude that brings these unfortunate patients to him at a time when there is some hope, however slight, of doing something for them. Any postgraduate course would be incomplete if it did not impress upon physicians (1) that every lump or chronic sore may be cancer and its true nature should be determined without delay; and (2) that if the individual physician is not equipped to treat cancer according to the best modern methods, he should send such a patient at once to some place where such treatment can be applied.

HOSPITALS IN ILLINOIS

In 1934 there were 320 hospitals in Illinois. This was 7 less than in 1933, and 33 less than in 1929. During the past year, one new state hospital was added while 2 county and 5 city hospitals were closed. Thus the chief loss in hospitals was in the government owned group. This applies also to a longer period. Between 1929 and 1934 in Illinois there was a decrease of 11.8 per cent in government owned hospitals, in contrast with a loss of only 2.6 per cent for the U. S.; and a decrease of 8.2 per cent in non-government hospitals as contrasted with 5.9 per cent for the U. S.

The number of beds in government owned hospitals in Illinois has increased about 15 per cent since 1929, while the number in non-government has remained practically unchanged. In 1929, 69.5 per cent of the average total hospital census was in government owned hospitals and 30.5 per cent in non-government owned. In 1934 these figures were changed to 78.6 per cent and 21.4 per cent, respectively. In 1929 the government owned hospitals were 88.5 per cent filled with patients and non-government owned hospitals were 66.7 per cent filled. In 1934 corresponding figures were 94.7 per cent and 50.1 per cent. These figures indicate the serious

financial strain put upon Illinois hospitals during the last 6 years. The non-government hospitals have carried on in spite of greatly reduced income due to reduced occupancy while government owned hospitals have had to carry on with budgets rendered wholly inadequate by the increase in occupancy. The latter group appears to have suffered more severely than the former for in 1933-34 7 government owned hospitals were closed and only one non-government. This greater reduction in the number of government owned hospitals is also shown by the fact that in 1929, 31.7 per cent of all the hospitals in this State were government owned, in 1934, only 23.4 per cent; while in 1929 the non-government hospitals constituted 68.3 per cent of the total and in 1934, 76.6 per cent. The changes in the number of beds shows a slight but opposite trend. In 1929, 63.2 per cent of the hospital beds in Illinois were in government owned hospitals, in 1934, 66.2 per cent; while the beds in non-government hospitals in these two years constituted 36.8 and 33.8 per cent respectively.

Forty-one hospitals (12.8 per cent) with 2 per cent of the total beds in Illinois have been denied official recognition by the American Medical Association. Throughout the United States, 569 hospitals (9.0 per cent) with a little more than 1 per cent of the beds have been denied recognition.

The number of hospitals in Illinois that have outpatient departments has been reduced during the past year from 112 to 99. The total number of outpatients increased 20.4 per cent but the outpatient visits decreased 44.5 per cent. To what extent these outpatient departments infringe on the private practice of medicine it is impossible to state. But they constitute a danger that warrants consideration.

The accompanying four Tables were prepared from the statistics in the Hospital Number of the *Journal of the American Medical Association* of March 30, 1935. They contain pertinent information concerning hospitals in the State of Illinois.

Respectfully submitted,

J. P. Simonds, M. D., *Chm.,*
W. R. Marshall, M. D.,
H. O. Munson, M. D.,
Committee on Medical Education and Hospitals.

REPORT OF EDUCATIONAL COMMITTEE

April 1, 1934 to March 31, 1935

To the Members of the House of Delegates:

With the great changes taking place in our country today, the many comments in newspapers concerning revisions of business administration, and more important, proposed changes in the practice of medicine, the Educational Committee has come to be a source of information to many lay organizations. Where could the public obtain information concerning these proposed medical problems given such publicity? Some groups knew that the Illinois State Medical Society maintained an Educational Committee where information could be obtained. They asked for speakers, literature and help on these important questions and problems and recom-

TABLE 1
HOSPITAL FACILITIES IN ILLINOIS BY TYPE OF CONTROL

	Hospitals—1934		In Illinois—1934		
	In U. S.	In Illinois	Beds	Patients Admitted	Average Census
Government-Owned:					
Federal	313	8	3,494	12,896	3,438
State	544	24	33,941	29,365	33,249
County	496	24	5,885	86,317	5,270
City	328	18	2,396	17,640	1,770
City and County	68	1	170	101	99
Total Government, 1934	1,749	75	46,276	146,315	43,833
Total Government, 1933	1,776	81	46,478	137,098	42,271
Total Government, 1929	1,795	85	40,337		35,688
Non-Government Owned:					
Church	970	88	11,384	181,148	5,904
Fraternal	72	5	444	4,815	301
Association and restricted Corporations	1,604	80	8,555	133,753	4,202
Individual and Partnership	1,310	40	864	8,598	335
Unrestricted Corporations	629	32	2,403	31,763	1,113
Total Non-Government, 1934	4,585	245	23,650	360,877	11,855
Total Non-Government, 1933	4,661	246	24,282	343,251	11,912
Total Non-Government, 1929	4,870	268	23,437		15,666
Grand Total, 1934	6,334	320	69,926	506,392	55,788
Grand Total, 1933	6,437	327	70,762	480,349	54,183
Grand Total, 1929	6,665	353	63,774		51,354
Percentage Distribution:					
Government, 1934	27.4%	23.4%	66.2%	28.9%	78.6%
Government, 1933	27.6%	24.7%	65.7%	28.5%	78.0%
Government, 1929	26.8%	31.7%	63.2%		69.5%
Non-Government, 1934	72.6%	76.6%	33.8%	71.1%	21.4%
Non-Government, 1933	72.4%	75.3%	34.3%	71.5%	22.0%
Non-Government, 1929	73.2%	68.3%	36.8%		30.5%
Percentage Occupancy:					
Government, 1934	89.9%	94.7%			
Government, 1933	90.1%	91.0%			
Government, 1929	88.7%	88.5%			
Non-Government, 1934	56.1%	50.1%			
Non-Government, 1933	53.5%	49.1%			
Non-Government, 1929	64.5%	66.7%			

TABLE 2
HOSPITAL FACILITIES IN ILLINOIS BY TYPES OF SERVICE

Type of Hospital	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	% Occupancy in Illinois	% Occupancy in U.S.
General	219	27799	3640	448249	16381	58.9%	60.3%
Nervous-Mental	30	34775	....	15936	33963	97.6%	95.0%
Tuberculosis	27	3805	....	4344	3086	81.1%	85.2%
Maternity	7	386	344	7571	207	51.0%	60.9%
Industrial	3	128	2	1340	70	54.7%	43.4%
Eye, Ear, Nose and Throat	2	275	....	6113	182	66.2%	45.3%
Children's	4	400	24	6458	263	65.8%	67.3%
Orthopedic	2	180	....	414	157	87.2%	76.7%
Isolation	3	513	....	3851	279	54.4%	39.4%
Convalescent and Rest	6	251	....	1292	161	64.0%	65.6%
Hosp. Depts. of Institutions	15	768	25	8920	411	53.5%	66.4%
All other Hospitals	2	646	....	1904	528	81.7%	79.2%
TOTALS (1934)	320	69926	4035	506392	55688	79.6%	79.2%

TABLE 3
PATHOLOGY AND RADIOLOGY DEPARTMENTS AND SUPERINTENDENTS OF HOSPITALS

	IN ILLINOIS						IN U. S.	
	Number			Percent			Number	Percent
	1934	1933	1929	1934	1933	1929	1934	
Total Number Hospitals	320	327	353				6334	
Number with clinical laboratories	254	255	254	79.4%	77.9%	72.0%	4271	67.4%
Number without clinical laboratories	66	72	99	20.6%	22.3%	28.0%	2063	32.6%
Number with M. D. Directors	170	170		53.2%	52.0%		2950	46.6%
Number with other Directors	51	68		15.9%	20.7%		876	13.8%
Number with no Directors	33	17		10.3%	5.2%		445	7.0%
Number with x-ray departments	161	262	240	50.3%	80.0%	68.0%	4488	70.9%
Number without x-ray departments	159	65	113	49.7%	20.0%	32.0%	1846	29.1%
Number with M. D. Directors	95	189		29.7%	57.8%		3403	53.7%
Number with other Directors	51	59		15.9%	17.9%		703	10.9%
Number with no Directors	15	14		7.6%	4.3%		382	6.3%
Number with M. D. Superintendents	83	89		25.9%	27.2%		2226	35%
Number without R. N. Superintendents	152	150		47.5%	45.8%		2551	40%
Number with Lay Superintendents	85	88		26.6%	27.0%		1545	25%

TABLE 4
HOSPITALS WITH OUTPATIENT DEPARTMENTS

	IN ILLINOIS		IN U. S.	
	Number	Percent or Average	Number	Percent or Average
1934				
Total Number Hospitals	320		6,334	
Number with Outpatient Departments	99	30.9%	2,319	36.6%
Number Outpatients	619,197	6,254	7,885,465	4,262
Number Outpatient Visits	1,536,982	15,525	34,358,606	14,816
1933				
Total Number Hospitals	327		6,437	
Number with Outpatient Departments	112	34.2%	2,351	36.5%
Number Outpatients	514,182	4,591	5,519,427	4,049
Number Outpatient Visits	2,772,437	24,754	32,822,077	13,918
1929				
Total Number Hospitals	353		6,665	
Number with Outpatient Departments	99	23.0%	2,190	32.8%
Number Outpatients	290,391	2,933	6,664,980	3,043
Number Outpatient Visits	960,605	9,703	19,056,394	8,701

mended the service to other organizations. As a result of this knowledge and publicity, the work of the Committee has increased although the budget has been greatly curtailed and the staff of workers reduced to two.

A number of events stand out during the past year as being particularly worthy of mention. When officials were planning for the Century of Progress, the Committee did not know what an important part they were to play in using this wonderful exhibit as a means of bringing to the general public the story of medicine and its achievements. During the summer of 1934, the Committee was invited to schedule physicians to address the public meetings sponsored by the scientific group in the Hall of Science. Chicago doctors gave six talks a week from the day the Fair opened, through the day it closed. Thousands of people from all over the world were able to hear these men, scheduled by the Committee, speak under the auspices of the Chicago Medical Society.

Mr. Rufus Dawes sent the following message to Doctor Foley, Secretary of the Chicago Medical Society: "The Century of Progress has noted with satisfaction the cordial cooperation which the Chicago Medical Society has given it. The publication on the front page of the Society's Bulletin each week of a different picture of some view of the Century of Progress and the frequent editorial comments upon it in your pages, have not only been a valuable advertisement, but an evidence of friendliness which has been appreciated. *The almost daily public lectures by members of the Chicago Medical Society have been a valuable support to the policy of the Century of Progress to give sound information upon medical topics to its visitors.*"

The subject of *vivisection* held a prominent place during the winter months. The Committee endeavored to lend its support to the medical scientists in presenting true information concerning the laboratories and the results of animal experimentation. Through the Committee it was possible to arrange programs, with speakers from the medical schools, for many types of organizations and schools. In addition to these public lectures, the Committee devoted radio time to the discussion of vivisection.

The office of the Committee has been in a position to recommend programs on *Health Insurance* to a number of organizations. Probably more can be done in bringing this subject before lay groups when a greater number of speakers are prepared to talk on this important subject. The public is tremendously interested in the subject of health insurance and are anxious to learn how the medical profession stand on the question and their reasons for adopting this position. Organized medicine knows that their answers and recommendations are important to the future welfare of the public and the profession.

A series of lectures was given before groups of two hundred to four hundred men and boys in the various transient homes of the Cook County Service Bureau in connection with the *Illinois Emergency Relief*. Moving picture films were also obtained for these groups.

SPEAKERS' BUREAU

The willingness of Illinois physicians to give their time and ability without charge made it possible for the Committee to present health programs before *five hundred and ninety-five* audiences, the attendance numbering in the thousands. Every type of group was reached, grade school children, high school assemblies, mothers' clubs, parent teacher associations, women's clubs, men's clubs, lodges, churches, colleges, Y. M. C. A. and Y. W. C. A., teachers' institutes, farm bureaus, and home bureaus. The Speakers' Bureau of the Illinois State Medical Society is recommended to local organizations by the Illinois Congress of Parents and Teachers, the Illinois Federation of Women's Clubs, and several men's clubs as well as the Superintendents of Schools.

RADIO

Probably every physician realizes the extent to which the radio is used to advertise patent medicines and cure-alls. Huge sums of money are being spent by promoters to make their programs attractive to the public, while the broadcasts sponsored by legitimate health organizations make small impression upon the public which has become accustomed to the bally-hoo methods of high priced promoters. However, the Educational Committee has been "pegging away' 'as have many other well qualified organizations to bring correct health information to the public through simple, dignified programs. The impression made may be slight, but there is the possibility that this will be enlarged as time goes on and it is hoped that through efforts such as ours, legislation will become effective which will prohibit over the radio this high pressure salesmanship of quack remedies. During the year the Committee has been most fortunate in being given time over radio stations WGN, WBBM, WJJD, and WAAF for regular broadcasts. The Committee as well as the entire State Medical Society appreciates this time so generously donated by the stations. A total of *two hundred and fifty-four* talks have been given during the period covered in this report.

With an average of five radio talks a week to arrange, one realizes the amount of work required to secure suitable speakers, obtain copies of the papers, prepare them for the Committee to edit and censor, and send copies to the stations. Few speakers have failed to keep their appointments which is most remarkable when one considers the many emergencies which arise during the doctor's day.

PUBLIC LIBRARIES

Service given public libraries in Illinois has grown by leaps and bounds. At the present time *one hundred and thirty-nine* libraries are on the mailing list to receive weekly health articles for posting and reference filing. These articles, covering a wide range of subjects on seasonable health conditions, are prepared and censored by the Committee. Reports of the Illinois State Department of Public Health are helpful in keeping the Committee acquainted with health conditions in the state. This same library material is furnished program chairmen of the women's auxiliaries in the state, the Red Cross and the Y. W. C. A. of Chicago. Plans are being made to increase the mailing list during the coming year. Reprints of the article "Why We Oppose Health Insurance" were sent to all libraries on the mailing list.

The following letter was received from one librarian, "You may be interested to know that we have found the sheets you are sending us very useful. They are placed in our filing cabinet as permanent material under "Diseases." The high school students refer to them constantly in their preparation of papers on those diseases. I hope you will issue a paper on just German measles, which people take not at all seriously. Please make the paper strong and I will make a window display with it and material on contagion."

PACKAGE LIBRARY SERVICE

The package library service offered by the Committee has been most helpful to doctors called upon to address lay groups. The service has increased and the Committee is able to assemble material from its clipping files on practically any subject relating to health which may be requested. The material has been helpful to the

Women's Auxiliary and some study clubs. A number of the very small clubs of the state are very glad to have these package libraries and copies of the radio talks for use at their meetings. These are read by members and take the place of speakers. Twelve folders were compiled for a medical officer of the American Legion who was planning brief talks on timely health topics for monthly meetings at the various Posts.

CONTACTS

Contacts with lay organizations have been strengthened by the Committee for it is through this type of cooperation that health educational work in Illinois may become better organized with suitable leadership. A number of these contacts might well be mentioned with an explanation of the service given the different groups.

The Committee has arranged programs for the monthly meetings of the public health chairmen of the Chicago District of the Illinois Federation of Women's Clubs. Publicity was given the tour of university laboratories sponsored by one district of the Federation of Women's Clubs in the interest of vivisection. Program material was outlined, approved and mimeographed for the Chairmen of Public Health of the Illinois Federation. A program on health was outlined and furnished the 7th District of the Federation in connection with a Health Institute. A portion of this program was devoted to the subject of Health Insurance. The attendance numbered about a thousand club women. A program on Health Insurance and What It Means was arranged for the public health chairmen of the Chicago District of the Federation. This meeting with its unusual program brought forth much discussion and note taking as those present were to report back to their various clubs.

The National Congress of Parents and Teachers furnished the Committee with a supply of Summer Round-Up material for use in Illinois. This was mailed to all county medical society secretaries so that they might become familiar with the plans for the pre-school examinations before they were approached by their local parent teacher officers. A program was arranged in connection with the health service of the Home-Makers' Conference held at the Sherman Hotel of Chicago sponsored by the Illinois Congress of Parents and Teachers with the cooperation of all women's organizations in the Central States. A survey of the service given by the Speakers' Bureau of the Medical Society was supplied for publication in the handbook of the Illinois Congress of Parents and Teachers. Information about the Illinois State Medical Society radio broadcasts was furnished an official of the American Child Health Association who is also a member of the Advisory Committee of the National Congress of Parents and Teachers Summer Round-Up of Pre-school Children. This information was to be listed so that local Parent Teacher Associations throughout the country might know of these programs on child health given by doctors of Illinois.

Home Bureaus of various counties with the supervision of the Extension Department of the University of Illinois have been undertaking programs of education on care of the feet and posture. The Committee believes that doctors should be as interested in the foot problems of the public as in their other health problems, and for that reason the Committee has cooperated with the Home Bureaus in sponsoring programs in these counties with speakers from the Medical Society.

Considerable assistance was given the Chicago Medical Society in promoting the four health programs given for the benefit of the public. Announcements were sent to clergymen, presidents of clubs, newspapers, industrial plants, men's clubs and wherever groups might gather.

The secretary was asked to appear before Superintendent Bogan and all assistant superintendents of Chicago schools. Through this contact an opportunity was given the Committee to reach a number of the larger high schools and grade schools of Chicago.

The Y. M. C. A.'s of Chicago and down state have made extensive use of the Speakers' Bureau and the doctors who were scheduled to address the groups report much interest as indicated by the questions from the men and boys present.

A representative of the American Bar Association visited the office of the Committee to obtain information as to the general set-up of the educational program, particularly the work of the Speakers' Bureau.

A number of state medical societies have asked for information about the work of the Educational Committee.

The various departments of the State Department of Public Health and the American Medical Association have cooperated with the Committee.

The Committee has assisted the Woman's Auxiliary whenever called upon. Program material has been prepared, speakers scheduled, letters written, hundreds of articles and notices mimeographed. The Auxiliary can be a powerful ally to the Committee and it is hoped that the individual members of the Auxiliary will recommend to lay groups the services offered through the Illinois State Medical Society and its Educational Committee. There are still some clubs allowing unqualified health speakers on their programs; it is only through education and the influence of the medically minded members that this practice will be wiped out.

SCIENTIFIC SERVICE COMMITTEE

All the work of the Scientific Service Committee is handled through the office and paid for from the appropriation of the Educational Committee. There is no doubt that many county societies have found the Committee a source of real assistance in supplying program material. Early in the fall a complete list of speakers and subjects was furnished each county secretary with a letter stating they were privileged to make their own selections.

COUNTY MEDICAL SOCIETIES

With the belief that county medical societies must be well organized to meet the many problems besetting them today, the Committee has tried to strengthen county organizations and to bring these groups before the public as often as possible. One method of doing this has been through assistance to busy secretaries in sending announcements of medical meetings. These sec-

retaries furnish the office of the Committee with a copy of the program, then the office addresses cards not only to the members of the county concerned, but also to doctors in adjoining counties inviting them to attend. This has increased attendance at most of the meetings, in some cases several hundred per cent. In addition to furnishing doctors with these announcements, stories about the meeting and program are sent to newspapers so that the reading public will know that the doctors are organized, are keeping up with the new discoveries in medicine and are interested in the health problems of the local communities.

This has meant a great amount of work in the office, it has required the addressing and mimeographing of thousands of postal cards, sending out thousands of releases to newspapers, but it has certainly been worth while. Secretaries reimburse the office for the cost of the cards. During one four-month period a total of 18,250 cards, notices, copies of minutes, press releases concerning county medical societies were mimeographed. When the Committee first functioned it was with the idea that a certain amount of time should be given to county medical societies. The county is the unit of all health education work and the Committee has attempted to keep all counties informed of what was being done, to offer them all service possible and to assist them whenever called upon. During the past twelve months about half the appropriation of money and time was turned back to county medical societies in the state through services of many kinds, some counties taking advantage of all activities, others making but little use of the Committee.

NEWSPAPER SERVICE

14,592 releases were furnished Illinois newspapers, every newspaper in the state receiving some health educational articles or county medical society notices for publication. There is no way of knowing just how many newspapers used the material, but the clipping service would indicate a rather wide interest. This department has grown and become more influential, yet there are some Illinois papers still publishing health articles written by men not recognized by the profession. Members of local medical societies could help by talking with the editors, showing them information compiled on the authors by the American Medical Association, thus assisting the Committee in seeing that only correct scientific information is published in Illinois. Personal contact between local medical representatives and the local press is important. To show what can be done along this line, the secretary of one of the branches of the Chicago Medical Society contacted five newspapers reaching a large foreign population in the territory of that branch. As a result of these conferences between the physician and the editors, the Educational Committee is supplying a health column for publication over the authority of this branch to all five newspapers. This type of work has been duplicated in many counties, and could be in others. If local doctors will make contacts with their editors, the Committee is prepared to supply as much material as may be needed.

The secretary of one county medical society using the office of the Committee for publicity of its monthly meetings, states that the newspaper publicity given his county medical society programs is building public confidence in organized medicine.

The public is becoming more alert to medical problems, they are reading and thinking, but due to the great variety of conclusions presented in our newspapers and magazines are at a loss to formulate any definite opinions of their own. Organized medicine has the opportunity to help formulate public opinion and much can be done by cooperating with the Educational Committee.

A report of the work of this Committee is a report of the contributions of individual members of the Illinois State Medical Society. Much has been accomplished, much remains to be done.

Respectfully submitted,

R. R. Ferguson, M. D., *Chm.*,
Wm. D. Chapman, M. D.,
Charles J. Whalen, M. D.,
Charles P. Blair, M. D.,
Otis O. Stanley, M. D.,
Jean McArthur, *Secretary,*
Educational Committee.

REPORT OF SCIENTIFIC SERVICE COMMITTEE

April 1, 1934 to March 31, 1935

To the Members of the House of Delegates:

One hundred forty-seven speakers were scheduled to present scientific programs before the following city and county medical societies:

Adams, Bureau, Champaign, Christian, Charleston, Carbondale, DeWitt, DuPage, Fulton, Franklin, Henry, Iroquois, Kane, Kankakee City and County, Knox, Livingston, LaSalle, Marion, Monroe, McDonough, McHenry, McLean, Perry, Paris Hospital, Paris, Peoria, Pike, Rock Island, Scott County, Iowa, St. Anthony's Hospital, Rockford, St. Joseph's Hospital, Elgin, Southern Illinois Medical Association, Tri-County, Vermilion, Will-Grundy, Warren, Whiteside, Eighth Councilor District, Ninth and Tenth Councilor Districts, Eleventh Councilor District.

Last fall a revised list of speakers and subjects was sent to officers of all county medical societies. Each county makes its own choice of program from this suggested list and the committee completes the arrangements; some of them invite their own speakers and no record is kept of these appointments. Many of the medical societies have had programs on problems facing organized medicine, a number of these were arranged by the committee, others were planned by the local officers.

The following subjects were selected by the 38 different medical groups making use of the services of the Scientific Service Committee:

2 Allergy, 7 Dermatology, 3 Eye, Ear, Nose and Throat, 9 Endocrinology, 11 Ethics, Economics, Organization, etc., 8 Genito-Urinary and Proctology, 38 Medicine, 3 Miscellaneous, 2 Nephritis, 4 Neurology, 8 Obstetrics, 10 Orthopedics, 20 Pediatrics, 18 Surgery, 3 Tuberculosis, 1 X-Ray and Radium.

A number of counties secured all their programs

through the Scientific Service Committee, a request came from the Scott County, Iowa, Medical Society for several programs. This same service is offered to all county medical societies, city medical societies and hospital staffs.

Respectfully submitted,

Frank L. Brown, M. D., *Chm.*,
Charles S. Skaggs, M. D.,
Charles B. Reed, M. D.,
James T. Gregory, M. D.,
Percy Hopkins, M. D.,
Scientific Service Committee.

REPORT OF MEDICAL ECONOMICS COMMITTEE

To the Members of the House of Delegates:

During the past year the subject of Medical Economics has assumed an importance, which would have been thought impossible a few years ago. This has been due to the threatened changes which would involve the medical profession. The Committee was enlarged at the beginning of the year by the addition of Dr. L. E. Day of Chicago and Dr. E. H. Weld of Rockford. All members of the Committee have given freely of their time and energy to work of the committee.

Many of the subjects discussed in the last annual report of the committee could and probably should be reconsidered at this time to report any progress made. An attempt will be made to do so without taking up each subject individually. The subject of Group Hospitalization was returned to the Committee for study. A special subcommittee was selected under the chairmanship of Dr. C. E. Wilkinson of Danville. They studied the subject exhaustively and reported to the Council at the January meeting at Rockford. While unwilling at that time to recommend the plan in toto, they said, "There are certain pitfalls in the form of schemes for socialization of medicine. Unqualified endorsement of Group Hospitalization might lend encouragement to an allied plan for group medical care in this moment of economic frenzy. We wish to suggest, however, that any community of members of our Society, wishing to inaugurate a Group Hospitalization plan, receive hearty cooperation from the Council and whatever assistance we may be able to give, provided the specifications include the following tenets:

"1. The plan must be acceptable to the local county society.

"2. The majority of the Board of Control must be in the hands of the local county society.

"3. The organization must not be for profit.

"4. There must not be interference with the relationship between the patient and the physician of his choice.

"5. The plan must be open to all hospitals in the community."

Recently it has been announced that 70 hospitals in New York City have started a Group Hospitalization plan. The success or failure of this plan will be watched by the rest of the country. Although strenuous attempts have been made to start such a plan in Chicago, according to the latest available reports, they have been unable or unwilling to do so.

However, this is far from a settled question and it is to be hoped that some cities of Illinois will have had enough experience with the subject to make a definite recommendation at the next meeting. Meanwhile, we feel that no further action should be taken by the Illinois State Medical Society.

Contract practice continues to be a very vital subject. The action of the House of Delegates of the A. M. A. at Cleveland in declaring so-called "Contract Practice" unethical gave a definite understanding in the matter. However, each case must be considered in its entirety before decision can be given and as yet some of the details are indefinite. Involving as it does a majority of the members of the medical profession in some manner or means, it needs much more study, for it bids fair in the opinion of this committee to assume the role of one of our major problems in the near future. Some of the local county societies have well assumed the position that prior to entering into any contract in regard to furnishing medical care, the physician should submit to the county society, or a committee of the same, said contract for approval and in the event that said contract is not received, signing of the same by the physician shall constitute sufficient reason for the filing of charges of unethical conduct against him. After a fair trial, conviction shall result in either suspension or removal from membership in the society. Such a rule may seem radical, but if we are to control the orgy of price cutting and underbidding accompanying so-called contract practice, there must be teeth in our rules and nerve enough to use them. The same criticism holds true for work for the cities, counties and townships. No method in common use at this time is giving satisfaction to all concerned. The committee has never been able to understand why the medical profession should furnish their services to the county or township at reduced prices, while the grocer, and store keeper get their regular prices. Again the reason is cupidity and selfishness of the medical men as individuals.

The major question before this committee has been that associated with proposed and intimated changes in the methods and manner of extending medical care. This assumed a paramount importance last summer and has taken up a great amount of the time of the committee since that time. To review all of the developments would be too time consuming and would but repeat what the majority of you already know. Suffice it to say that there was and is a well planned campaign to gradually involve the medical profession in a plan of socialized medicine, which for lack of a better name is referred to as State Medicine, as it is called in Germany and England. These plans gradually came to the attention of the medical profession, and practically every state as well as the national organization has spent a great amount of time studying the subject and figuring out plans to oppose the same. Opposition is not offered for a selfish reason, as many of our critics assert, but because in our opinion, it is not for the common good.

Physicians are interested primarily in the good of the sick and have at all times an open mind on methods of improving the same. However, they insist they are the best judges as to the methods to be used in improving any defects brought to their attention, and insist also that to date no plan has been presented which proves the methods now in use are not producing results (in the United States) which compare better than favorably with any other country in the world. Statistics can be readily quoted to prove these assertions, were it necessary, but all of you have had the opportunity to read them repeatedly. Your Council sent a letter to the President of the United States giving reasons why they were opposed to any method of socialized medicine. This letter has been printed in the ILLINOIS MEDICAL JOURNAL, and we hope that all of you have read the same. At this time no definite action has been taken in Washington or Springfield in this regard. The Committee on Medical Economics has insisted that the best way to combat this danger is to educate both the medical profession and the laity as to the facts in this matter. Beginning with the physicians, we have advised a meeting in each Councilor District with two or three outstanding speakers, well informed on their subject to present the facts to the doctors. Then one or two men can be selected in each community to carry the message to the laity. In the opinion of the committee this can best be done through civic clubs, such as Rotary, Kiwanis, Lions, and Optimists, through Women's Clubs, Parent-Teachers Associations, Business and Professional Women's Clubs and others of a similar nature. Progress in this work has been delayed and is much behind what it should be at this time. This is due principally to a failure of all men in the profession to assume that responsibility which they should, but rather take the position that somebody else will do it for them. This is all too easy to do, but in this instance will not suffice. A few men cannot carry the load and all the lamentations which will be sure to follow passage of such legislation will not do any good while a small portion of the same energy expended at this time will accomplish a great deal. Once we can convince the public that the so-called state medicine will neither improve medical care or be less expensive, it will be a simple matter to bring to the members of Congress and our Legislature the fact that such a change is not wanted by such an avalanche of letters and telegrams that they cannot ignore any more than they could a few months ago when considering entering the World Court. We must have the public ready to do this for their own good and not because we ask it. This can only be accomplished by a campaign of education such as outlined above. We feel that a return of better times will do away with any demand for a change in the manner of conducting the practice of medicine. All such changes in foreign countries have been accomplished as an expediency in times of economic distress, but once started assume the proportions of a snowball going down hill. We must not allow the snow ball to start forming.

One of the statements commonly made by reformers in the past few years, has been that 50 per cent. of the people are not getting adequate medical care. Let us admit that all are not. Let us also assume that the physicians are in the best position to know who are getting adequate care, and, a definition of adequate care again is a debatable point. Physicians do not believe this statement and it was decided to make an effort to see what the laity thought about it. So a questionnaire was sent to the Mayors of all cities and towns in Illinois to find out what they as city officials thought on the subject. 143 replies were received from all parts of the state. The answers were very interesting. Question number one was, "Is the medical care in your community adequate and satisfactory?" 139 answered "Yes," two answered "No" and two qualified their answer. Question number two, "Has the medical profession carried on in a satisfactory manner during the depression?", 141 of the answers were "Yes," one said "Fair cooperation" and the other "Not so good." Question number three, "Suggestions as to how medical service could be improved." Naturally these covered several phases of the subject. It is interesting to note, however, that 21 of them criticized the manner in which relief was being administered under either the governmental units or the Illinois Emergency Relief Association or both, and suggested that there should be changes in the same. Only two criticized medical fees as too high and one suggested that we were underpaid. From these replies, we feel that while criticism is rightfully made of the nature of medical care, we should be greatly encouraged by the fact that the medical profession has carried on during this depression in such a manner that we are not being accused of neglecting the sick and that the real criticism has been leveled at the service rendered by governmental agencies, the very method that the reformers are insisting will do away with all the troubles now present. If the limited amount of interference in medical care which is now present as result of the care of the indigent and unemployed, how much more would there be if the plan were made to involve the major portion of the people of this country? Surely physicians who have given years of study to the care of the sick are the best judges as to the nature and frequency of medical care and the people are not slow in recognizing this fact after a taste of regulation by lay people. The answers to this questionnaire cannot be ignored by any just person with an open mind who has the welfare and health of the public in his heart.

We must bear in mind that our present economic problems are intimately connected with the great international ones. If we can keep going on an even keel and restrain the reformers and propagandists from taking advantage of the times to make unnecessary changes in the manner of caring for the sick, it will take a very short time for many of our economic problems to disappear. In fact there would be little demand for and no possibility of any change if the people of this nation were returned to work at a living wage, which should and will include enough to maintain the standards to which they became rightfully accustomed in the twenties. This is in reality the problem of industry, for once socialization has been accomplished in even so small a group as medicine, it will be much easier to extend its influence into other fields.

There is work at present for every medical man and we hope that our work in the past year has to some extent stimulated many of you to assume that responsibility. Empty words and purposeless gestures will not suffice. Action is necessary, but first we must be prepared to answer the question which will be asked us. We must work for the future of medicine so that the young men now in medical schools will have the same opportunity for development and individual progress that those of our generation have enjoyed. Anything less makes us unworthy to face our predecessors, who gave to us the opportunity we have enjoyed.

Respectfully submitted,

I. H. Neece, M. D.,
C. E. Wilkinson, M. D.,
E. H. Ochsner, M. D.,
L. E. Day, M. D.,
E. H. Weld, M. D.,
E. S. Hamilton, M. D., *Chm.,*
Medical Economics Committee.

REPORT OF VETERANS' SERVICE COMMITTEE

To the Members of the House of Delegates:

Because of the delay in the appointment of the Department Surgeon of the Medical Commission, the American Legion, your Committee will necessarily have to submit a rather brief report.

Due to this delay the Medical Commission has been somewhat handicapped in its action during the past year; however, your Veterans' Service Committee has kept up its contact with veterans' organizations through the Medical Commission. Veterans' organizations have not interested themselves very much in medical legislation. Their program in the last year has been that of "Americanism" and "Payment of the Bonus." Your chairman of the Veterans' Service Committee attended the meeting of the commanders and adjutants conference in Bloomington sitting especially in with the Rehabilitation Committee. Medical legislation seemed to occupy only a minor role in their deliberations.

A manual outlining the duties of the post, county, district and division surgeons of the Veterans' Organizations is now in the process of formation and will be ready for publication as soon as ratified by the Legion convention in September. Dr. Walter C. Burket, 7th District Surgeon, had undertaken to edit this manual, Dr. Charles Schott, Chairman of the Child Welfare Committee, Dr. Robert Mellin, Surgeon of the Advertising Men's Post, and your chairman, collaborating. Needless to say, the welfare of organized medicine will receive proper recognition.

In regard to hospitalization of veterans, there has been some activity in Illinois to obtain legislation recommending the building of hospitals at Danville, Jackson and Anna. So far nothing concrete has been effected.

Your Committee feels that because of the past success of the Veterans' Dinners with prominent speakers well informed on veterans' affairs, these dinners should become a permanent and well established function of the annual meetings of the Illinois State Medical Society.

Respectfully submitted,

F. O. Fredrickson, M. D., *Chm.,*
H. J. Way, M. D.,
E. P. Coleman, M. D.,
John S. Nagel, M. D.,
F. G. Norbury, M. D.,
T. B. Williamson, M. D.

REPORT OF ADVISORY COMMITTEE TO ILLINOIS EMERGENCY RELIEF COMMISSION

To the Members of the House of Delegates:

This report is composed of two parts. A summary in reference to Cook County has been supplied by Dr. Charles H. Phifer, Chairman of the Cook County Advisory Committee, and also a member of the State Advisory Committee. His comments follow:

The problem of the installation of the Illinois Plan in Cook County was quite different from that down state for the following reasons:

1. Chicago as an industrial center had suffered from the depression earlier and heavier than the rural or down state districts.

2. The number on relief here was over 800,000, a number greater than the total in the remaining down state counties.

3. The funds in Cook County had long been depleted by reason of this great responsibility.

4. Organized plans were in operation whereby these people in their homes were cared for by the Cook County Physicians, a Civil Service organization; the ambulatory in the dispensaries; the hospital clients in 17 hospitals, that had social service departments and charity attending staffs, as well as the County and Government hospitals.

The above program had been endorsed for economy reasons by the Council of Social Agencies, who act as advisers on health matters to the Illinois Emergency Relief Commission. It was for this reason that the Illinois Plan was modified in Cook County as follows:

a. Restriction of office visits to those clients who had had home service and required office care to complete their treatment.

b. Hospital care was restricted to the previous 17 hospitals, in these no surgical or medical fees were allowed.

c. Ambulatory clients who had not been receiving home care were referred to one of the 12 established dispensaries for which the Commission reimbursed the Institution on the basis of 72 per cent. of the total number of clients treated, or sixty-five cents per client.

d. The care of the chronic sick was of necessity included because county, chest and community funds were depleted.

Registration is open to all licensed physicians in Cook County. We began operations with 1400 and now have over 2500, of which over 50 per cent. are members of the Chicago Medical Society.

The local Advisory committee meets every two weeks with Mrs. Lucille M. Smith, Director of Medical Relief

Service, and other representatives of the Illinois Emergency Relief Commission, where questions of policy concerning administration, drugs and detailed plans regarding procedure are thoroughly discussed.

The plan demands an enormous amount of time on the part of the Committee and members of the Commission. It frequently requires from 3½ to 5 hours or more to complete the agenda that accumulates in two weeks.

Every effort is being made to try to preserve the private physician and patient relationship. When there is no preference, calls are assigned in rotation. The Commission submits to us a monthly payroll showing the number of calls assigned to each physician and the amount of money paid to him.

The question of high payrolls on the part of a limited few threatens to disrupt the plan.

The question of ambulatory clients being referred to the private physician was recently discussed by a special committee appointed by Dr. John R. Neal as Chairman, consisting of representatives from (1) a teaching clinic, (2) a non-teaching clinic, (3) Council of Social Agencies, (4) the Commission and (5) our local advisory Committee.

This Committee endorsed a resolution asking the Commission to give the ambulatory client in need of medical care the privilege of choosing between the physician and the dispensary. This resolution is now pending before the Commission.

The local advisory Committee has approved the following resolution, which has been concurred in by the Council of Social Agencies, namely: that we request the Illinois Emergency Relief Commission to broaden the list of 17 hospitals to which the clients are being referred to include those hospitals accredited by the American Medical Association for internship, and those approved by the American College of Surgeons.

This plan has now been in operation a year and I wish to make the following report for April 1, 1934 to April 1, 1935:

Home Visits	211,175	
Obstetrical care	$17,627.50	
Office Visits	19,717.00	
Work Relief	55,837.35	
Total Payroll		$458,938.60

Respectfully submitted,
Charles H. Phifer, M. D., *Chm.*

PART TWO

Ninety counties in Illinois are now operating under the Medical Relief plan, while up to the month of May fifty-eight were operating under the Illinois Dental plan. In the fifty-eight counties operating under the Dental plan there were, in May, 267,157 families or 83 per cent. of the relief case-load of the State.

The ninety counties giving medical care contained, in March, 314,109 families or 1,103,570 individuals, while the twelve counties not under medical care had 7,366 families on relief,—less than 3 per cent. of the total.

In eleven months of the Medical plan, the Illinois Emergency Relief Commission expended for all forms of medical and dental care, including hospitalization and nursing, but not including administrative costs or salaries,—$2,654,897.38. Over a period of a full year of twelve months the total would be very close to three million dollars.

By far the largest part of this went to physicians as pay for their services. Outside of Cook County, in the eighty-nine down-state counties operating under the plan, less than twenty-five per cent. went for hospitalization and approximately seven per cent. for drugs and appliances. In Cook County where many public clinics are available and must, therefore, under Rules and Regulations No. 7, be used, a larger proportion of the funds went to clinics and hospitals; 28 per cent. to hospitals alone and 38 per cent. to hospitals and clinics, the total sum for the latter in the month of February being $73,073.00, while $69,255.00 went to physicians for home and office visits. This amount was paid to that proportion of approximately 1800 physicians registered for medical service in Cook County who happened that month to receive referrals.

In Cook County alone, during a recent typical month, 21 per cent., or 33,000 of the total case-load in the county, numbering 156,000 families, was referred for medical care, while in downstate counties the percentage was thirteen for a case-load of 157,000 families. In Cook County, the average cost per case per month, given medical care in the same month was $5.75, while for down-state counties it was $5.05.

This percentage of case-load is a little difficult to understand; hence a better figure is the percentage of the number of individuals on relief.

For example, in the 156,000 families on relief in Cook County, there were 526,000 individuals (using round numbers), while among the 157,000 families on relief down-state there were 608,000 individuals, the families down-state being larger. Of the 526,000 persons on relief in Cook County in February, 33,000, or 6.2 per cent. were referred for medical care, while of the 608,000 persons on relief down state, more than 20,000, or 3.6 per cent., was referred for medical service, or a total of over 53,000 persons in one month.

Cook County is spending about 97 cents, nearly $1.00, per relief family each month, while down-state is spending about 75 cents per family per month, not including rather large amounts spent for work-relief examinations and work-relief injuries, as well as for medical care in the various transient bureaus and camps.

The figures on work-relief physical examinations are interesting: In one study made of over 50,000 examinations for which the physicians of the State received an average of $1.00 per case the following classifications resulted:

Able-bodied—Class A	52.5 per cent.
Minor defects—Class B	30.0 per cent.
Serious defects—Class C	15.9 per cent.
Disqualifying defects—Class D	1.6 per cent.

33.5 per cent. of the defects discovered were in the classifications "mouth and throat," 21.1 per cent. "general" ailments, 20.2 per cent. heart manifestations, 15.1 per cent. hernias, and 15 per cent. eye defects. One out of every twenty-seven persons was found to be mentally abnormal.

It is regretted that these figures could not be compared with similar examinations made of a control group of non-relief persons.

These figures are interesting, however, when considered in the light of impending developments in the new field of work projects which is to follow the present relief program.

The Medical and Dental relief service of the Commission has reported to the State Medical Advisory Committee that cooperation of Medical Societies and membership has been of the highest standard, that serious difficulties are few and that rarely are physicians removed for cause from the referring list, this happening far more frequently in Cook County where medical competition is keener than it is down-state. One Cook County physician was recently fined $300 by the Courts for padding his invoices and for giving names of patients. No legals steps were taken against any down-state physicians, because unnecessary and less than five known cases were dropped from the referring lists.

Complaints from physicians have not been frequent nor serious. Ninety-eight per cent. of the few complaints received by the State Medical Relief Service have been on the matter of slow payment of bills for which the physicians themselves are often at fault, through holding invoices too long, failing to secure clients' signatures or failure to be specific in charges, or in some cases, where charges are excessive.

The Relief Service makes it a rule not to arbitrarily cut a physician's bill but to return a wrong bill to the County Relief Administrator for correction with a memorandum to that effect, whereupon the nurse is to discuss the alteration with the physician and gain his consent before the amount on the bill is actually reduced.

Bills are being paid fairly promptly but it must be borne in mind that a huge piece of machinery may have to move slowly. It is not wise to expect complete liquidation of bills in less than sixty to ninety days after presentation, although at least half the counties in the State now pay their bills within thirty days from presentation.

The difficulty of weeding out minor and fancied ailments as well as chronic cases is still a problem, but is being solved gradually through closer contact and cooperation between the local Medical Advisory Committee and the referral nurse.

Since the amount allowed per family per month has been increased from fifty cents to seventy-five cents to include dental care, there has been less complaint about inadequacy of funds. More than half the counties live within their medical allowances.

The Commission answers the question of more money with the statement that all counties are treated alike and that the sum appropriated, exceeding as it does now, $300,000 a month—is supposed to be supplemental to local communities' own resources and never was intended to meet the cost of all medical care deemed necessary or even essential.

The Medical Relief Service of the State reports that it is frequently hampered by complaints about bills from physicians who, when sixty or ninety or more days elapse before payment, write exasperating comments to the Governor, to State Senators and Representatives and to every type of political leader except directly to the Medical Relief Service, to which after considerable delay all complaints must eventually come. That department has been fair and just and can save the physician much time and labor and considerable loss of temper if dealt with directly. Often, indeed, the department discovers that by the time the complaint arrives the bill is paid or the check is on the way.

Complaints should go first of all to local Administrators of relief where the bills are paid as few are paid in Chicago, and that failing, a letter should go directly to the Director of the Department, Bernard C. Roloff, 1319 South Michigan Avenue, who will give every complaint personal attention. Often a wait of a few days or weeks will clear the matter without a written complaint.

It is estimated that probably half of some 5000 down-state physicians receive medical referrals in any one month. If that is true, then the amount allowed for medical care down-state per month provides as much as an average of $40 per physician. However, it is known that many physicians receive over $200 a month; scores, if not hundreds get over $100 a month each and in one county, at least, one received $800 a month for several months and several others over $500 a month.

The little county of Henderson with a case-load of only 450, spent $750 in April for medical care. This went to fourteen physicians, an average of $56 each. Three doctors in this county received over $150 each in that month.

In McLean County, five physicians received over $100 each for one month's service. In Hardin County, out of six doctors, three received over $100, one of them over $200. In Alexander County, four out of seventeen received over $100.

The amounts received differ with the concentration of relief case-loads in counties where there are many or few physicians.

One problem which seems to grow more acute with each passing month is the fact that in a number of counties, one or two, and in larger counties sometimes as many as four or five physicians are getting the bulk of the medical service. These men as we have just noted in a few counties, have averaged over $500 a month and several who have been paid over $800 a month.

What is the reason for this top-heavy income, is it fair, and if not, how can it be corrected?

Obviously, the primary object of the medical program was to give medical relief to sick people. Secondarily, however, we must concede that it was also to give the physicians some relief from their tremendously heavy charitable burdens and provide those who were breaking down financially with an income for the work which was formerly given free.

Some counties have managed to control this situation by taking action in the Medical Advisory Committee to limit the amount any one physician can achieve in any given month.

The referral nurse is instructed by the Committee to refer cases to the physician in the high brackets only to the point of his quota which may be set at $100. After that, patients who ask for him continue to be referred as before, but the invoice is stamped, "Not to be paid for" whereupon, the physician, if he desires to keep the

patient in his own care, may do so by giving free service. If he does not mind the case being referred to another doctor, however, he can say so and the nurse informs the client that his doctor has reached his quota and another must be selected, whereupon a referral is written to a physician who has not reached his quota. This plan has been tried and it works. It is merely suggested, however, as the Commission itself is not concerned over how many patients ask for a given physician.

Some committees carefully go over every physician's request for hospitalization or surgery, some of them requiring written case histories in brief. The committee then decides whether or not the case is an emergency and either allows or disallows the operation. Other counties insist upon having a pathological report on every case operated on and when only healthy tissue is removed, recommended that the fee be not paid.

These matters are wholly within the province of the committees themselves and demonstrate to what extent self-government is possible in the handling of cases on relief service.

Respectfully submitted,
John R. Neal, M. D.,
Chairman Advisory Committee.

REPORT OF COMMITTEE ON SOCIAL SECURITY PROBLEMS

To the Members of the House of Delegates:

This committee was created by the Council at the meeting on January 11, 1935, to aid the county medical societies and their membership in the proper organization to most effectively endeavor to bring to both physicians and laymen our attitude concerning many of the social security problems now before us, and especially those which may in any way, affect the future of medicine.

Our committee has been attempting to get all possible data accumulated which pertain to this subject, and it is our intention to go over this material carefully, and within a short time get out regular bulletins to all component societies of an informative character.

We propose to arrange skeleton outlines which will be available to those members desiring to present such subjects as "the socalization of medicine," "What state medicine will mean to you," "Why we oppose Sickness Insurance," and other related subjects, before lay audiences.

It is our intention to get all county medical societies in Illinois properly organized to do more educational work among the citizens of our state, to keep them informed concerning the social security problems pertaining to medical care, and the effects on them as citizens and taxpayers, the effects on the type of service to be rendered to them under these various proposed schemes, and many other types of information which we believe they should receive.

We believe that this committee working through and with the office of the Secretary of the Illinois State Medical Society, the Educational Committee, and the Committee on Medical Economics, will be able to fill a gap in our service which is much needed at this time.

The committee hopes to have our plans under way within a short time and respectfully urges each county medical society and individual members to submit any constructive ideas to us, which will be of future benefit to the physicians of Illinois.

Respectfully submitted,
L. E. Day, M. D.,
Ralph Peairs, M. D.,
John R. Neal, M. D.,
Hugh McKechnie, M. D.,
P. H. Kreuscher, M. D.,
E. S. Hamilton, M. D.,
E. P. Coleman, M. D., *Chm.*,
Committee on Social Security Problems

REPORT OF SCIENTIFIC EXHIBITS COMMITTEE

To the Members of the House of Delegates:

This committee is the first of its kind in the history of the Illinois State Medical Society. We have made an honest effort to improve both the quality and quantity of the Scientific Exhibits displayed. Much credit is due our Secretary for his untiring energy and judgment in securing and selecting the exhibits we present at this meeting.

We feel sure our Moving Picture Program will be both educational and interesting. It will show in Room 1003 Faust Hotel each day as follows:

Tuesday, May 21, 1935

11:00—Technique of Gastroscopy.....Schindler
11:45—Mechanism and Electrocardiographic Registration of the Normal Heart Beat Cycle..Lundy
2:30—Reconstruction Surgery Following Poliomyelitis .....Levinthal
3:15—Scarlet Fever Control .....Rhoads
4:00—Treatment at Elgin State Hospital.....Read
4:45—Surgical Relief of Arthritic Damage.Magnuson

Wednesday, May 22, 1935

9:30—Mechanism and Electrocardiographic Registration of the Normal Heart Beat Cycle.Lundy
10:15—Reconstruction Surgery Following Poliomyelitis .....Levinthal
12:00—Scarlet Fever Control .....Rhoads
2:15—Treatment at Elgin State Hospital.....Read
3:00—Surgical Relief of Arthritic Damage.Magnuson
3:45—Technique of Gastroscopy.....Schindler

Thursday, May 23, 1935

8:15—Reconstruction Surgery Following Poliomyelitis .....Levinthal
9:00—Scarlet Fever Control .....Rhoads
9:45—Treatment at Elgin State Hospital.....Read
10:30—Surgical Relief of Arthritic Damage.Magnuson
11:15—Technique of Gastroscopy .....Schindler
12:00—Mechanism and Electrocardiographic Registration of the Normal Heat Beat Cycle.Lundy

You will find booths and their displays as follows:

11th Floor Lobby

A—Pathology of Coronary Disease—R. H. Jaffé,

M. D.—Department of Pathology, Cook County Hospital, Chicago.

B—Disorders of Glands of Internal Secretion—Willard O. Thompson; Phebe K. Thompson; S. G. Taylor, III; S. B. Nadler; and E. G. McEwen—Rush Medical College; Presbyterian and Cook County Hospital, Chicago.

C—Heart Movie—The Normal Heart Beat Cycle—(Simultaneous Heart Action — Electrocardiogram—Heart Sounds)—Clayton J. Lundy, Rush Medical College, Chicago.

D—Development of Gastroscopy—Rudolph Schindler—University of Chicago, Chicago.

E—Diet in Health and Disease—Clifford J. Barborka—Chicago.

F—Control of Scarlet Fever—Paul S. Rhoads—Scarlet Fever Committee and McCormick Institute, Chicago.

G—Progress in Allergic Diseases—Samuel M. Feinberg—Northwestern University Medical School, Chicago.

H—Exhibit of the Chicago State Hospital, Roentgenological and Related Studies—Roy Kegerreis, Consulting Roentgenologist, Chicago.

I—Elgin State Hospital—Treatment—State of Illinois—Elgin State Hospital, Chicago.

J—New Method of Preparation of Multicolored Corrosion Specimens—Joseph K. Narat, John A. Loef, and Mrs. Joseph K. Narat, University of Illinois Colloge of Medicine, Department of Anatomy, Chicago.

Mezzanine

K—Council of Physical Therapy—John A. Coulter—American Medical Association, Chicago.

L—Wesley Memorial Hospital and Arthritic Exhibit—Philip H. Kreuscher, Paul B. Magnuson, T. P. O'Connor and Gilbert H. Marquardt—Wesley Memorial Hospital, Chicago.

M—Skull Fracture Exhibit—Management of Acute Cranio-Cerebral Injuries—Harry E. Mock, Morrow, Shannon—St. Luke's Hospital and Northwestern University Medical School, Chicago.

N—Modern Radium Technique in the Treatment of Cancer—Max Cutler, Director, Tumor Clinic, Michael Reese Hospital, Chicago.

O—Photographs of Interesting Unusual Tumor Cases (especially of the skin)—Veterans' Administration Facility, Hines, Illinois.

P—Distribution of Physicians and Hospitals in the United States—American Medical Association, Chicago.

Q—State of Illinois—Department of Public Health and Illinois State Planning Commission—Henry Horner, Gov.; Frank J. Jirka, M. D., Director; Robert Kingery, Chairman, Springfield, Illinois.

R—The Coroner's Office as a Medical Legal Agency—Oscar T. Schultz, M. D.

Exhibit of the Institute of Medicine of Chicago at A Century of Progress. Presentation of the Exhibit at this meeting through the courtesy of the Museum of Science and Industry of Chicago.

Reconstruction Surgery Following Poliomyelitis—Daniel H. Levinthal, Cook County Hospital, Michael Reese Hospital, Chicago.

Respectfully submitted,

J. S. Templeton, M. D., *Chm.*,
N. S. Davis III, M. D., *Secretary*,
J. P. Simonds, M. D.,
Robert Berghoff, M. D.

Committee on Scientific Exhibits.

REPORT OF THE EDITOR

The history of the Illinois State Medical Society is one of scientific progress from its inception. Its beginning dates back to the pioneer days when the West beckoned and called to those brave enough to venture into the country beyond the Ohio.

At the present time the Illinois State Medical Society proudly stands among the scientific institutions that have weathered the gales that try the hearts of men. Today with 85 years of constructive building experience behind it, with a vitality dating back to the days of Indian warfare and to the chaotic conditions antedating the Civil War—The Illinois State Medical Society carries on.

The Illinois Medical Journal stands today at the opening of its thirty-sixth year, and its sixty-seventh volume. Science has travelled a long, tedious, obstacle ridden road since the days of 1850, when first the doctors of Illinois banded together into the Illinois State Medical Society. In those days, the ladies wore waterfalls and crinolines; the sturdy kitchen table of pine and the flaring kerosene lamp, or even the stout tallow candle were only too often the surgeon's only friends, while quinine, calomel and mercury served as the doctor's third hand.

Ethical medicine was practically in its hey-day, when some four dozen years later a few of those valiant pioneers and their courageous successors issued their comparatively slim little bulletin, "The Illinois Medical Journal," for the profession, of the profession and by the profession. Medicine had gotten its sea legs in the new country "The United States of America." We had survived an internecine war; a war with one of the oldest and wealthiest monarchies; the fierce and fundamental early skirmishes of capital and labor; some pretty severe brushes with ethical cults, a marvelous international exposition in Chicago, the hoop-skirt, the wasp waist, and were thinking actively about letting the women have a chance at the ballot box. Also, though we didn't know it, or didn't realize it, the contemporary problems of medicine were already set to brew by communists, socialists and political bosses.

Medicine as a science has progressed literally by leaps and bounds since those fin de siecle days when the Illinois Medical Journal was born. Medical men for a certain proportion of that time have prospered though to a much slighter degree than any other of the secular learned professions. Even the poorest "country doctor" has some sort of a gasoline nourished vehicle today. Many a "rich specialist" boasts high powered and chauffered limousines, and perchance an aeroplane or two. Covering all the old remedies, and those newer ones such as gland and vitamin preparations are standard phar-

maceuticals, which, linked with recognized, captured and applied electrical currents and rays, replace the ancient saddle bags that extended such a long way towards the preservation of a magnificent citizenry and its guidance towards flowering into our great American nation. That little, by comparison painfully printed and much discussed "Journal of the Illinois State Medical Society" whose first editor was the capable Dr. George N. Kreider, of Springfield, Illinois, and who was succeeded by the efficient Dr. Clyde D. Pence of Chicago, burgeoned, too. In the first year of its existence the Journal had a circulation of five hundred copies. For the year ending the circulation totalled 110,000 copies with an average of 128 pages per issue, of which the advertising proportion is twenty-five per cent.

Today the circulation of the Illinois Medical Journal reaches into other continents as well as to practically every section of the two Americas. The true success of the Illinois Medical Journal lies in the opulence of its scientific content, which has been provided by the profession itself, and which could not have come from any other source. These contributions have been brilliant, scholarly and informative.

Liberal indeed has been the contribution to the Illinois Medical Journal of the experiences, the judgments and the research of many of the most scientific men in the entire realm of medicine. And in these contributions lie the secret of true brotherhood, far removed from the false fraternalism of the Soviet. There in far off Russia, *brotherhood is preached.* Here in the United States, *brotherhood is practiced* to the highest degree in the self sacrifice and the toil and the impeccable mutuality of scientific medicine. Not even in the precincts of the churches is the tenet of "none for self, self for all" expounded and lived with such faith and fidelity, such integrity and immolation.

But if the medical profession unwinds ever the skein of unselfishness the same is not true of the people whom the profession serves. Great wealth in the hands of a medically presumptuous laity; great power in the fists of a politically befouled bureaucracy, strives to usurp the service-sanctified works of ethical medicine and deliver the skilled and trained scions of the healing art into the Jezebel and Rahab houses of state medicine—that insiduous, destructive, fatal puppet of politics and politicians, in alias, "Lay dictation of medicine," "Health Insurance," et al.

Down the ways of all the years while the doctors and the surgeons and the ethical specialists in Illinois have toiled to advance the science of medicine and have succeeded in making our state literally the medical center of the world, the Illinois Medical Journal, mouthpiece and organ of the Illinois State Medical Society with "an eye to the future and an ear to the ground" has sounded the tocsin of warning against this invasion by lay-wealth and by lay-dictators and by self interested politicians. At the outset, some quarter of a century ago when the shadow was no smaller than a man's hand, such preachings were eyed a bit askance, and professional optimism regarded them with the colloquial slant of "laughing it off." Those days have vanished. The shadow is no longer a flickering fragile thing. It is a huge and dominant sable cloud, thicker and heavier than the dust storms that ravage the west. State medicine, public health insurance, all the other names by which politicians, and communists would make this collection of unAmerican theories pose as the roses of Araby, are shadows no longer. The shadow has grown into substance, and gentlemen, it has invaded our hospitals, our universities, our clinics, our offices, our operating rooms, even our patient's bedside! We see lay corporations practicing medicine; we see universities practicing medicine in competition with their own alumni; we see the names of dozens, of scores, aye, of hundreds of physicians on the borderline of want! Our profession that gives more in charity, in actual flesh and blood charity than any other walk of life, must accept in many instances and after many years of indefatigable devotion to humanity, merely the beggared dole. To top it all, in the offing lurks the frightful future of a medical practice, evilly controlled by despotic lay bureaucrats on funds wrung from the even now staggeringly burdened taxpayers of whom it may be said that their greatest possession is "pockets full of poverty."

As the early American patriots preached and practiced, despair is not rampant in the veins of men, but courage commands their arteries,—index of strength as well as of age. By propaganda has the science of medicine gradually been sold into bondage.

Now "fire must be fought with fire." This is a cardinal principle of the pioneer through the ages. Propaganda must be conquered by propaganda. From the lay press the medical profession can expect comparatively little aid in our battle for that security of the race that dwells in the safety and assured future of the practice of medicine when *medicine is practiced by medicos and not by politicos!* For the lay press demands for itself that living wage that the world has come to begrudge the doctor and so the lay press is dominated as far as the eye can reach by the length and breadth of its paid advertising columns and its only too often subsidized editorial outlook. Men must live, they say, forgetting all about the men, who fight the battle for ethical medicine, and whose hardest tasks are cleaning up after the quacks and charlatans.

So our battle must be fought in our own professional journals. It can be won there, when the traitors are weeded out of the ranks. Far be it from the mind of your editor to indulge in the mudslinging that would befoul our own nest but it must be brought home to every member of the profession, here, now and hereafter that just as every individual doctor in the country must get out and effect through his own organization and his own state legislature and the men his state sends to make and to enforce the laws of the land that safeguard the health of the citizenry and the perpetuation of the nation, by safeguarding the inalienable rights of scientific medicine, so must these same men see to it that reputable medical journals are not debauched into mouthpieces for the propaganda of the enemy but uphold in every paragraph, sentence, word and mark of

punctuation the tenets of scientific medicine and the rights of her practitioners!

There is no use in mincing words nor polishing phrases. The medical profession is about to be propaganda-ed out of existence. We cannot buy up the lay press, if we would. We have neither the money or the inclination either as a profession, an organization or individuals. But if we lack cash we do not lack conscience nor ethics. The battle must be fought in our own journals and that without diminution.

It cannot be repeated too often that the biggest commercial effort now on the boards is the attempt of big business to corner the practice of medicine and make of science and public welfare a political plaything.

To effect this barter the deal is being put through as a beneficence to the American taxpayer, at his own taxpaying expense!

There are two main divisions of propaganda, centering upon the future distribution of medical service and the future preparation of the coming generation to practice medicine, and upon the right of lay corporations and the laity at large to practice medicine and to dictate to the scientific members of the profession how medicine shall be practiced.

In the first division comes all the twaddle as to "governmental care of the sick," "welfare service without stint," "public health insurance" and other methods of tapping the till of the taxpayer to secure funds of which a considerably smaller proportion will go to the defrayment of actual medical service performed than to the costs of lay administration of such service. In this section are blanketed all of the bureaucratic tendencies for the government, the federal government, supported by the individual taxpayer of the nation to usurp the doctors in the practice of medicine. Of all the individuals welded into the body of federal government medical service only approximately one per cent of them are drawn from the medical profession.

In the second section must be aligned universities and foundations practicing medicine, the majority of them lay-endowed and lay-controlled, lay-financed group practice and free or part pay dispensary service and the encroachments of the overtrained nursing profession and the over-powerful, lay abetted hospitalization situation, the lay inspired medical legislation and again and always again *Washington's over-centralization!*

Now to fight these menaces, effort and individual responsibility cannot be delegated to any one especial group or individual in any community. It is up to every doctor worthy of the name to make this fight for his profession and for the mother science, his own individual fight; to make every possible lay contact that he can to educate and to inform the lay public as to the honest facts of the current medical situation and to disabuse them of the so-called benefits of socialistic aid.

Respectfully submitted,

Charles J. Whalen, M. D.,

Editor, Illinois Medical Journal.

COMMITTEE ON CANCER

The Cancer Committee received notification of its appointment by letter of date of May 13, 1935. All members accepted appointment to this committee, which consists of Dr. J. P. Simonds, Chicago; Dr. R. H. Jaffé, Chicago; Dr. M. G. Bohrod, Peoria; Dr. E. G. C. Williams, Danville; and Dr. Bowman C. Crowell, *Chairman.*

A meeting of this committee was held in Chicago on the afternoon of May 20 for consideration of desirable activities in the field of cancer on the part of the Illinois State Medical Society. It was the sense of the committee that the lay education in cancer in the State of Illinois has had such an effect upon the lay public as to make desirable greater activity along this line on the part of the medical profession in order to meet the demands which are constantly being made upon the members of the profession. In line with this thought your committee feels called upon to make the following recommendations:

1. In order that we may have a basic knowledge of the present conditions with relation to cancer in the State of Illinois that a survey of the incidence of cancer in Illinois, and the hospitals and other facilities available for its diagnosis and treatment be made. The American Society for the Control of Cancer has made such surveys in a number of other states, and has a trained personnel for this purpose. Your committee suggests that an invitation be extended to the American Society for the Control of Cancer to make such a survey in the State of Illinois. Their report of this survey should be made confidential to the Cancer Committee and the Council of the Illinois State Medical Society.

2. Your committee urges that the presentation of cancer programs at the meetings of the Illinois State Medical Society and of the constituent County Medical Societies be encouraged, and your committee offers its cooperation to the program committees in these various societies for the preparation of suitable program.

3. Your committee extends an offer of its cooperation to the Lay Educational Committee of this Society, and to such other committees as may have an interest in cancer in the fulfillment of their objectives. One suggested line that may be here considered is advice as to material to be presented to the public and the individuals who may acceptably make such presentations.

4. An important practical feature in all cancer work is the organization of cancer clinics in general hospitals. Such clinics redound to the benefit of cancer cases, to the staffs of hospitals in which such clinics exist and have a distinct educational value for the doctor. A limited number of these exist in the State of Illinois. Standards for such clinics have been set up by the American College of Surgeons, which issues approval to those clinics as meet its standards. It is suggested by your committee that emphasis upon the formation of such clinics in the State of Illinois be delayed until such time as the report of the survey of present available facilities be furnished.

Your committee begs the privilege of making addi-

tions to its membership in cooperation with the Chairman of the Council.

Respectfully submitted,
J. P. Simonds,
R. H. Jaffé,
M. G. Bohrod,
E. G. C. Williams,
Bowman C. Crowell, *Chairman.*

The President: This report was not published in the pamphlet. It will be referred to the Reference Committee of which Dr. C. E. Humiston is Chairman.

The Historian has submitted no report.

The next order of business will be the presentation of resolutions.

The Secretary: The first resolution is the one concerning the office of Coroner, which was introduced at the Council meeting this morning by Dr. L. E Day, Chicago, and read here by the Chairman of the Council. (See page 17.)

Dr. Lee O. Frech, Decatur: According to a motion passed by the Macon County Medical Society instructing its delegate on certain questions brought before this Society, the following resolutions are presented:

FEES PAID BY ILLINOIS EMERGENCY RELIEF COMMISSION

WHEREAS, the Illinois Emergency Relief Commission has an agreement by contract with the Illinois State Medical Society (and its component branches) to pay certain specified fees to physicians of Illinois for medical services rendered relief clients, and

WHEREAS, the Illinois Emergency Relief Commission has violated said contract agreement in appropriating not more than half enough funds for medical relief purposes, and

WHEREAS, physicians, in general, of Illinois are not in sympathy with emergency medical relief as it has been, and is conducted, therefore

Be it resolved, that the Advisory Committee of the Illinois State Medical Society on Medical Relief take the necessary steps to cause the allocation of sufficient funds to adequately meet the costs of medical relief in Illinois, and

Be it further resolved, that the Advisory Committee, failing in this, terminate all contracts and agreements between the Illinois State Medical Society and the Illinois Emergency Relief Commission.

CLOSER UNION BETWEEN COMPONENT SOCIETIES AND STATE SOCIETY

WHEREAS, there should exist better organization effects by a closer union between the component medical societies in the state, also between these local units and the Illinois State Medical Society, and

WHEREAS, the state society should be better informed as to the needs and desires of the several individual component societies, and

WHEREAS, the state society should and must assume the responsibility of guiding and directing the local societies in their actions on economic questions; of enlightening their members in the different phases of medical economics; of unifying and coordinating economic ideas of medicine throughout the state; and in assisting the local societies in adjusting to the changing social status, so as to better protect themselves from the hazards of lay-control, therefore

Be it resolved, that the House of Delegates of the Illinois State Medical Society cause to be instituted a Bureau of Medical Economics, and

Be it resolved, that said bureau shall consist of a director, and two (or four) members, whose terms of office shall be three years, and who shall be appointed by the President and confirmed by the House of Delegates, and

Be it resolved, that the state society cause each local society to elect (or appoint) a committee of three, to be known as the Committee on Medical Economics, whose duty it will be to cooperate with the State Bureau of Medical Economics, and

Be it further resolved, that sufficient funds be allocated each year by the state society to insure the successful function of this bureau.

Dr. Charles B. Reed, Chicago: At the last meeting of the American Medical Association a resolution was introduced and passed in regard to the management of various clinics throughout the country under lay domination. This resolution refers especially to the clinics promoted by the Elks in this state. I do not believe it is necessary at this particular time to stress this resolution because the Council has endorsed the action of the House of Delegates of the American Medical Association, but it seems necessary to bring it to your attention. Therefore, I beg to read to you this resolution:

MANAGEMENT OF CLINICS UNDER LAY DOMINATION

WHEREAS, in many communities throughout the country various lay organizations are sponsoring the conduct of diagnostic clinics for such conditions as physically handicapped children, infant feeding problems, etc.; and

WHEREAS, the actual clinical work is performed by members of organized medicine; and

WHEREAS, full credit for the results if favorable is often given to the sponsors instead of to the clinicians; and

WHEREAS, it has been published throughout the country that children with various handicaps are neglected by the medical profession; therefore, be it

Resolved, that all clinics, child welfare groups of whatever nature and other social or charitable organizations which have to do with medical problems be re-

garded as a part and attribute of medical practice; and be it further

Resolved, that the constituent county societies should organize, conduct and control all diagnostic and welfare clinics of whatever nature soever which are deemed essential to the conservation of health and for which the medical arm is responsible.

Dr. S. E. Munson, Springfield: The resolution I am about to read has been presented to me by a representative of one of the leading organizations of my county, a former president of the Federated Women's Clubs of the State of Illinois.

AMENDMENT TO EXEMPT PHYSICIANS, HOSPITALS AND CLINICS FROM THE FEDERAL LAWS RELATING TO TRANSMISSION OF SUPPLIES AND MEDICAL LITERATURE RELATING TO BIRTH CONTROL FROM THE U. S. MAILS AND COMMON CARRIERS

WHEREAS, it is of the utmost importance to all Americans that the population of our country be vigorous and healthy both physically and mentally, and

WHEREAS, the proper and intelligent use of scientific contraceptive methods under the direction of physicians is essential to these ends.

We hereby endorse efforts to secure an Amendment to exempt physicians, hospitals and clinics from the Federal laws which now exclude, without exception, supplies and medical literature relating to Birth Control from the U. S. Mails and Common Carriers.

Dr. Munson: Mrs. George T. Palmer is here and asks for a few minutes in which to discuss this resolution.

The President: I will entertain a motion to give Mrs. Palmer the privilege of the floor for three minutes.

(It was moved, seconded and carried that Mrs. Palmer be given the privilege of the floor for three minutes.)

Mrs. Palmer: Having been State Probation Officer and for many years connected with organizations interested fundamentally in the kind of a race that we are propagating in the United States, I am in favor of this resolution. The Board of the Federation of Women's Clubs at their meeting last week endorsed the amendment. I plead with you men as the great body of medical officers in the state of Illinois, whose influence is so far reaching, to get back of this amendment and give it support, that the mails of the United States be allowed to carry legally literature and supplies relating to Birth Control, which are now being carried bootleg. You know this thing is here, why not give it your backing and influence? Our drug stores in Springfield are full of this information and it is being brought down by the truckload from Chicago. I plead that you get behind this amendment which will permit physicians, nurses, hospitals and clinics to have the right kind of information. You know the continued increase in abortions that is taking place. You know that contraception is not killing infants, it is simply preventing life and that there is nothing wrong from that point of view. I have no criticism to make of those groups who are opposed to this as far as their own groups are concerned. We are not asking that the doctors go out and advocate birth control. We ask that you make it possible for people to have this information that are in need of it. The economic condition incident to the depression has brought this to the fore more than anything else. The magazines are full of it. You men should get behind this movement and let people get away from inhibitions and prejudices. I have talked for three years on this subject to women's clubs. The women are interested in it. The Federation of Women's Clubs has not endorsed it as a legislative measure as yet, but we hope they will. Let us seek for quality in children rather than quantity. You know when families have six or eight children there is less food, less clothes, fewer advantages in every possible way. It is the child we are pleading for as well as the mother, that unwanted children will not be brought into the world. If any of you gentlemen have been around the institutions of this state and have seen the feeble-minded children, you would use your influence to have this material go through the mails. Rhythm and other books are allowed to go through the mails by the Postmaster General, but nothing concerning Birth Control is permitted.

The President: We have two guests from the Iowa State Medical Society, the President, Dr. Thomas A. Burcham of Des Moines, and the Secretary, Dr. Robert L. Parker, Des Moines. I would like to introduce them.

Dr. Parker: Dr. Burcham is attending the Medical Section. Dr. Burcham and I left Des Moines to return the courtesy of your Society in sending the President and Secretary to attend our annual meeting. I also came for the purpose of sitting at the feet of Harold Camp to learn how a Secretary should properly and

efficiently carry on the work of his Society. In the absence of Dr. Burcham, I certainly want to extend greetings from the Iowa State Medical Society. In Iowa we have ninety-nine counties and ninety-seven organized medical societies. The ninety-nine counties are organized into eleven councilor districts. Eighty-two per cent. of our eligible doctors in the state belong to the State Medical Society. Nearly thirty-two per cent. of the doctors in the state attended our last session in Davenport. Iowa is not unmindful of what Illinois did for us at Milwaukee two years ago, and if we can ever return the compliment you can be assured we will do so.

The President: We were entertained at the Iowa State meeting and had an enjoyable time. They have the President of the American Medical Association, and he was there at all the sessions.

We now come to unfinished business.

The Secretary: There is none.

The President: We will pass on to new business.

The Secretary: I have here two letters from the American Medical Association asking if the Illinois State Medical Society would be willing to nominate the following gentlemen for affiliate membership in the American Medical Association.

Dr. William E. Gamble, now residing in Hollywood and Los Angeles, is a retired member of the Illinois State Medical Society, and has been a Fellow of the Association since 1900. He is 75 years old.

Dr. Karl Herz, Chicago, is an emeritus member of the Illinois State Medical Society.

Dr. O. J. Roskoten is an emeritus member of the Peoria County Medical Society and of the Illinois State Medical Society.

These three men are old and retired and are eligible to affiliate membership, if this House of Delegates will nominate them.

Dr. Mather Pfeiffenberger: I move that these three men be nominated for affiliate membership in the American Medical Association. (Motion seconded by Dr. R. L. Green, Peoria, and carried.)

The Secretary: I have a letter from Dr. W. W. Bauer of the Bureau of Health and Public Instruction of the American Medical Association relative to the Immunization Program. It reads as follows:

Attached is a statement which will probably be of interest to you and to the members of your Society. The statement itself is self-explanatory. It is being sent you through this Bureau because the American Child Health Association requested the cooperation of the American Medical Association in bringing this matter to the attention of practicing physicians through whom, as a careful reading of the statement will indicate, it is desired to work. The cooperation of this Bureau in bringing the matter to your attention has been authorized. (The *Journal A. M. A.*, 104: 11, March 16, 1935, p. 927.)

Of course, the American Medical Association through the Journal and *Hygeia* and the state medical societies through their journals, as well as county medical societies through their bulletins, have always favored diphtheria immunization. It should be gratifying to note that the American Child Health Association and the Conference of State and Provincial Health Authorities of North America in planning a May Day-Child Health Project for 1935, have chosen to work through the medical profession, enlisting also, of course, the aid of state boards of health and other health authorities.

There is nothing in the plan to indicate what the financial arrangements are to be, but presumably this would have to be a local problem and will have to be settled locally. It is hoped that your society will give this proposal, about which you will also receive a notification from your state health department, official consideration and that means will be found so that the physician may cooperate in this desirable health movement for the mutual advantage of the child, the community and the medical profession.

The attached statement reads as follows:

IMMUNIZE NOW—STAMP OUT DIPHTHERIA

May Day-Child Health Day has become an established institution throughout the United States. It was inaugurated in 1924 by the American Child Health Association for the purpose of calling the attention of parents, communities, and the public in general to the need for measures to protect the health of children.

In 1928 the United States Congress passed a joint resolution designating May first as Child Health Day, and authorizing the President to issue a proclamation requesting national observance of the day. In 1929 the Conference of State and Provincial Health Authorities of North America appointed a May Day Committee. In 1932 this Committee took over from the American Child Health Association, with the continuing assistance of that Association, the responsibility for the annual

observance of Child Health Day. In the states the work is under the direction of State Departments of Health.

Child Health Day celebrations are intended only to mark and emphasize either the inauguration or the culmination of year-round work for improvement of the health of children. The project for 1935 is diphtheria immunization. This was chosen because there has been but little reduction since 1930 in the number of deaths from diphtheria throughout the country. While particular emphasis will be laid on immunization this year, it is not intended that the project be limited to 1935. On the contrary one of the chief objectives is to have the work continued year after year by the medical profession.

IMMUNIZE NOW—Stamp out Diphtheria, is the slogan.

The measures proposed are:

To immunize all children between the ages of six months and six years. To make early immunization a routine practice by all physicians.

The majority of pediatricians do immunize the babies under their care during the first year of life. Physicians in general practice also should follow this procedure.

State Departments of Health and the unofficial organizations interested in children are calling the attention of parents and communities to the need for early diphtheria immunization. Each individual physician should be prepared to take care of the applications for immunization. Cooperative plans for this work should be made by the local medical societies and departments of health in all communities. When a local medical society has perfected plans for this phase of preventive medicine, there is no reason why it would not be possible to assume gradually other types until eventually preventive medicine forms an important part of the practice of all physicians.

This project offers opportunity for many medical societies and many physicians to assume their rightful leadership in the preventive medical work of their communities.

Descriptions of the plans of certain medical societies for community child health work will be found in:

The Experiments of the Medical Society of New Jersey in Furnishing Community Health Service. Section on "The Public Health Hour." p. 162. LeRoy A. Wilkes, M. D., Executive Secretary, Medical Society of New Jersey. American Medical Association Bulletin, December, 1934.

The Children's Hour. *Nassau Medical News*, December, 1934. Reprinted in *Westchester's Health*, February 11, 1935. Published by the Westchester County Department of Health, White Plains, New York.

What the Detroit Plan Offers. Henry F. Vaughan, Dr. P. H., Health Commissioner, Detroit. Reprinted from the December, 1933, issue of *Medical Economics*.

The President: This letter will be referred to the Reference Committee to study the reports of the Committee on Scientific Exhibit and the Committee on Social Security Problems, of which Dr. Humiston is the Chairman.

Dr. Mather Pfeiffenberger, Alton: I move we adjourn until Thursday morning, at 8:30 o'clock. (Motion seconded and carried.)

Second Session

Thursday Morning, May 23, 1935

The Thursday morning session was called to order at 9:00 A. M. by the President, Dr. Charles S. Skaggs, East St. Louis.

The President: The first order of business will be the report of the Credentials Committee.

The Secretary: In the absence of Dr. Coleman, Chairman of the Credentials Committee, the report shows a voting strength of 80, downstate 43, Chicago Medical Society 25, and 12 members of the Council.

The President: Unless there is objection, we will consider the report of the Credentials Committee accepted. The next order of business is the roll call.

The Secretary: I have signed slips for all delegates present.

The President: The next order of business is the reading of the minutes of the last session. If there is no objection, we will dispense with the reading.

The next order of business is the election of officers; first, the election of President-elect. Nominations are in order.

Dr. E. C. Kelly, Peoria: I nominate Dr. R. L. Green, Peoria, for President-Elect. (Seconded by Dr. E. S. Hamilton, Kankakee.)

Dr. E. P. Sloan, Bloomington: I second this nomination, and move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Green. (Motion seconded by Dr. John R. Neal, Springfield, and carried.)

The ballot was cast and the President declared Dr. Green elected.

Dr. Green: I thank you for the compliment and I expect you all to team up.

The President: Nominations for First Vice-President are in order.

Dr. Anfin Egdahl, Rockford: I wish to nominate Dr. T. H. Culhane of Rockford. (Motion second by Dr. C. E. Wilkinson, Danville.)

Dr. C. E. Wilkinson: I move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Culhane. (Motion sec-

onded by Dr. E. C. Kelly, Peoria, and carried.)

The Secretary cast the ballot and the President declared Dr. Culhane elected.

The President: Nominations for Second Vice-President are in order.

Dr. Guy M. Cushing, Chicago: I would like to place in nomination Dr. Fred H. Muller, Chicago. (Seconded by Dr. W. S. Bougher, Chicago.)

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and that the Secretary cast the affirmative ballot for Dr. Muller. (Seconded by Dr. R. J. Coultas, Mattoon.)

The Secretary cast the ballot and the President declared Dr. Muller elected.

The President: Nominations for Secretary are in order.

Dr. J. S. Templeton, Pinckneyville: I nominate Dr. Harold M. Camp to succeed himself. (Seconded by Dr. G. C. Otrich, Belleville.)

Dr. R. L. Green, Peoria: I move that the nomination be closed and the President cast the affirmative ballot for Dr. Camp. (Seconded by Dr. A. A. Hayden, Chicago.)

The President cast the ballot and declared Dr. Camp elected.

The President: Nominations are in order for Treasurer.

Dr. G. C. Otrich, Belleville: I wish to place in nomination Dr. A. J. Markley to succeed himself. (Seconded by Dr. W. E. Kittler, Rochelle.)

Dr. S. E. Munson, Springfield: I move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Markley. (Seconded by Dr. A. A. Hayden, Chicago.)

The Secretary cast the ballot and the President declared Dr. Markley elected.

The President: Nominations for Councilor of the First District are in order.

Dr. S. W. Lane, Kankakee: I wish to nominate Dr. E. H. Weld, Rockford. (Seconded by Dr. T. H. Culhane, Rockford.)

Dr. Culhane: I move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Weld. (Seconded by Dr. R. L. Green, Peoria and carried.)

The Secretary cast the ballot and the President declared Dr. Weld elected.

The President: Nominations for Councilor of the Second District are in order.

Dr. C. G. Pool, Compton: I wish to nominate Dr. Edgar C. Cook, Mendota, to succeed himself.

Dr. J. H. Edgcomb, La Salle: I wish to second that nomination and to move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Cook. (Seconded by Dr. S. W. Lane, Kankakee, and carried.)

The Secretary cast the ballot and the President declared Dr. Cook elected.

The President: Nominations for Councilor of the Third District are called for.

Dr. G. Henry Mundt, Chicago: I nominate Dr. R. K. Packard, Chicago, to succeed himself. (Seconded by Dr. E. P. Sloan, Bloomington.)

Dr. J. S. Nagel, Chicago: I move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Packard. (Seconded by Dr. A. A. Hayden, Chicago, and carried.)

The President: Nominations are in order for Councilor of the Eleventh District.

Dr. S. W. Lane, Kankakee: I nominate Dr. E. S. Hamilton to succeed himself.

Dr. E. H. Oelke, Wheaton: I second the nomination and move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Hamilton. (Motion seconded by Dr. R. L. Green, Peoria, and carried.)

The Secretary cast the ballot and the President declared Dr. Hamilton elected.

The President: Nominations are in order for delegates to the American Medical Association, five retiring, four to be elected.

(Nominations were presented in each case and the following delegates elected.)

Charles B. Reed, Chicago; C. S. Skaggs, East St. Louis; C. E. Wilkinson, Danville; W. E. Kittler, Rochelle.

The President: Nominations are in order for four alternate delegates at large for two years.

(Nominations were presented in each case and the following delegates elected.)

Frank L. Brown, Chicago; E. P. Coleman, Canton; C. W. Carter, Clinton; E. H. Weld, Rockford.

The Secretary: Inasmuch as Dr. W. E. Kittler, who was just elected a delegate, is already certified as an alternate, an alternate must be elected to take his place.

Dr. I. H. Neece, Decatur: I nominate Dr. L. O. Frech, Decatur, as alternate delegate at large. (Seconded.)

Dr. E. P. Sloan, Bloomington: I move that the nominations be closed and the Secretary cast

the ballot for Dr. Frech. (Seconded by Dr. C. E. Wilkinson, Danville.)

The Secretary cast the ballot and the President declared Dr. Frech elected.

The President: Nominations are in order for members of Standing Committees.

(Nominations were presented in each case, the Secretary instructed to cast the affirmative ballot and the President declared them elected.)

The following Committees were elected:

Public Policy: W. S. Bougher, Chicago; C. J. Drueck, Chicago; George Michell, Peoria.

Medical Legislation: John R. Neal, Springfield; Thomas P. Foley, Chicago; Mather Pfeiffenberger, Alton.

Medico-Legal: J. R. Ballinger, Chicago; C. U. Collins, Peoria (the two members re-elected for three years).

Medical Education and Hospitals: J. P. Simonds, Chicago; W. R. Marshall, Clinton; H. O. Munson, Rushville.

Relations to Public Health Administration: F. F. Maple, Chicago; Thomas Meany, Chicago; Frank Heda, Chicago; L. O. Frech, Decatur; Bernard Klein, Joliet.

The President: The next order of business will be the reports of the Reference Committees. The first will be that of the Resolutions Committee, Dr. J. S. Templeton, Chairman.

1. ABOLITION OF CORONER'S OFFICE AND ESTABLISHMENT OF A MEDICAL EXAMINER

(See page 17).

Dr. J. S. Templeton: I move the adoption of this resolution. (Seconded by Dr. C. E. Humiston, Chicago.)

Dr. G. Henry Mundt, Chicago: I question the advisability of allowing that to go through with only "pathologist" designed. It seems to me that it should be changed from only the word "pathologist" because eventually we will have a classification of pathologists and it will be a difficult thing in many towns and cities to vote a pathologist in as coroner.

Dr. Templeton: I raised that question and they said that any graduate of a medical school is a pathologist.

Dr. Mundt: Inasmuch as a classification of pathologists is in process of making, I question the wisdom of leaving that. There will be a good many men who will be classified as pathologists who are not physicians. I strongly protest against leaving the word "pathologist" in the resolution. I would make a motion that the word "physician" be substituted for "Pathologist." (Motion seconded by Dr. I. F. Harter, Stronghurst.)

Dr. C. E. Humiston, Chicago: The point raised by Dr. Mundt is well taken, if you are familiar with the controversy going on all over the country as to who is a pathologist and who is a clinical pathologist.

Dr. L. O. Frech, Decatur: As a member of the Committee, I think the point is well taken. We considered this resolution from the downstate angle more than from Chicago. Downstate it would be difficult to get a pathologist as coroner; if you held strictly to the law you would have no medical examiner downstate.

Dr. S. E. Munson, Springfield: I think the word "physician" should be qualified. Those of us in Springfield who are familiar with the State Legislature know that osteopaths and others are regarded as physicians. I think it should be qualified as "graduates in medicine."

Dr. E. P. Sloan, Bloomington: I wish to have the resolution read with the word "physician" substituted for pathologist. (Resolution read.)

Dr. G. Henry Mundt: With the permission of my second, I would like to change the word "pathologist" to "doctor of medicine."

Dr. A. A. Hayden, Chicago: I wish to amend the motion to read "doctor of medicine legally licensed in the state of Illinois." (Seconded.)

Dr. J. H. Edgcomb, La Salle: Would it be well to mention that many of our physicians are not licensed to practice medicine?

Dr. T. B. Knox, Quincy: I would like to ask if that copy goes to the Bar Association? Does that mean that our interest ceases after this appeal to the Bar Association? I wonder if it could not be referred in fact to the Legislative Committee to see that this is kept alive? It should not be allowed to die.

Dr. L. O. Frech, Decatur: My understanding is that this resolution came primarily from the Bar Association. They want the approval of the medical profession.

Dr. C. E. Humiston, Chicago: I believe that the Coroner's office is a constitutional office and that the constitution has to be amended before anything is done. We can express our wishes and the Bar Association can say what it wants but the constitution has to be amended. Are we do-

ing right in inserting the words, "doctor of medicine"? The Supreme Court of this state has recognized that a physician may be an osteopath or anyone else who is licensed in the state.

Dr. G. C. Otrich, Belleville: I think your President could tell you a story about a real honest-to-God doctor of medicine who is holding the office of coroner in one of the counties. I still think that the abolishment of the office is an advantage and that it is worth while. You are probably having the same trouble in Cook County. I do not know why you should have the word "physician." Abolish the office, and the law can take care of it.

Dr. E. P. Sloan, Bloomington: I rise to a point of order. The motion before the House is a move to amend. I call for a vote on the amendment.

The President: The question is called for. We shall vote on the amendment. (Amendment carried.)

Dr. Templeton: The resolution reads as follows:

"Be it therefore resolved, that the Illinois State Medical Society go on record as favoring the abolition of the Coroner's office and establishment in its stead a Medical Examiner who is a doctor of medicine legally licensed in the State of Illinois, to be appointed by the governor or civil service commission, whose duties will be medical examination only to determine causes of death, the legal investigative procedures to be left to the District or State's Attorneys."

The President: We will now vote on the motion to adopt the resolution as amended. (Motion as amended carried.)

2. FEES PAID BY THE ILLINOIS EMERGENCY RELIEF COMMISSION

Dr. J. S. Templeton: The Committee recommends that this entire matter be referred to the Council. I move that the recommendation be adopted. (Motion seconded by Dr. G. Henry Mundt, Chicago, and carried.)

3. CLOSER UNION BETWEEN COMPONENT SOCIETIES AND STATE SOCIETY

Dr. J. S. Templeton: This resolution introduced by Dr. Frech on Tuesday was withdrawn in Committee.

4. MANAGEMENT OF CLINICS UNDER LAY DOMINATION

Dr. J. S. Templeton: I move the adoption of the resolution.

Dr. G. Henry Mundt: I would second the motion but would suggest that the words, "special session assembled" be removed from the resolution.

The Secretary: This resolution appeared in the minutes of the special session of the House of Delegates of the American Medical Association last February. It will be changed in two or three places to make it apply only to our state.

Dr. Charles Harmon, Springfield: Will it be under the control of the County Society?

The President: This is a resolution urging all the county societies to supervise lay clinics.

(Motion to adopt resolution carried.)

5. AMENDMENT TO EXEMPT PHYSICIANS, HOSPITALS AND CLINICS FROM THE FEDERAL LAWS RELATING TO TRANSMISSION OF SUPPLIES AND MEDICAL LITERATURE RELATING TO BIRTH CONTROL FROM THE U. S. MAILS AND COMMON CARRIERS

Dr. J. S. Templeton: As this resolution deals with a national question, your Committee recommends that it be not approved. I move the adoption of the Committee's recommendation. (Seconded by Dr. A. A. Hayden, Chicago, and carried.)

6. DEATH OF DR. O. B. WILL

Whereas, the distinguished and much beloved Dr. O. B. Will of Peoria, Illinois, a faithful servant of the Illinois State Medical Society for many years and its President in 1894, has passed on to the great beyond.

Therefore be it resolved, that we hereby express our sorrow for our great loss and our appreciation of the great service he rendered organized medicine and humanity.

Dr. J. S. Templeton: I move the adoption of this resolution, that it be spread on the minutes, and that a copy be sent to the bereaved family.

Dr. E. P. Sloan, Bloomington: I second the motion and call for a rising vote. (Motion carried by a rising vote.)

7. DEATH OF DR. WILBUR H. GILMORE

Whereas, organized medicine has suffered a great loss in the demise of Dr. Wilbur H. Gil-

more, a former official who was an efficient, faithful secretary of the Illinois State Medical Society for nine years, from 1912 to 1921.

Therefore be it resolved, that we hereby express our great sorrow in the loss sustained and that we tender our sincere sympathy to the family of the deceased.

Dr. J. S. Templeton: I move the adoption of this resolution, that it be spread on the minutes and that a copy be sent to the bereaved family.

Dr. W. E. Kittler, Rochelle: I second the adoption of the resolution by arising vote. (Motion carried by a rising vote.)

8. DEATH OF DR. CLEAVES BENNETT

We, the members of the House of Delegates of the Illinois State Medical Society, recognizing our obligation to physicians who have given freely of their time and ability to uphold the standards of the medical profession, and have loyally supported its organization, have occasion at times to pause and give due consideration.

The Illinois State Medical Society requires and has always had able leadership to direct the activities of its organization, but occasionally the "Grim Reaper" ruthlessly selects one of its outstanding men. This is particularly true in the case of Dr. Cleaves Bennett who answered the summons on December 24, 1934, at a time when strong men are needed in the medical profession.

Dr. Bennett was an outstanding man in the medical profession. His preparation at the University of Illinois laid a broad and sure foundation for his life's work. Always sincere and fearless, he ever commanded the respect and confidence of his colleagues. He did not seek preferment in office, but was ever keenly alive to the best interests of his profession. Fulfilling its highest ideals, he grew ripe in experience and fruitful in service. Serving seven years as Councilor from the Eighth District he was given the honor of Chairman of the Council for two years. His leadership in that important office was constructive and his judgment was sound.

By the untimely death of Dr. Cleaves Bennett, the State of Illinois has lost an honored citizen; the Illinois State Medical Society, an able advisor; the medical profession, a conscientious worker; and humanity, a friend.

Words cannot always express our thoughts at such times, but we wish to place on record that we admire him for his broad minded charity and the integrity of his character; respect him for his candor, his sincere and direct address; honor him for his dependable judgment and love him for those strong and sterling qualities that distinguished him, a man.

We respectfully recommend that these sentiments be given a permanent place in the minutes of the House of Delegates of the Illinois State Medical Society and that a copy be sent to the bereaved widow as an expression of our deep and sincere sympathy for her in her great loss.

Dr. J. S. Templeton: I move the adoption of the resolution by a rising vote. (Motion seconded and carried.)

Dr. Andy Hall, Mt. Vernon: I move that a similar resolution be sent to the family of Dr. J. W. Hamilton. (Motion seconded and carried.)

Dr. A. A. Hayden: I would like to add the name of Dr. E. S. Murphy, Dixon.

The President: The custom of the House has been to only recognize the deaths of members of the House and Council or officers of the Society. From the fact that a large number has passed on during the past year, it would be impossible for the House to recognize each individual.

Dr. W. E. Kittler, Rochelle: I move that we express our sympathy on the deaths of our fellow physicians who have passed on during the past year by a rising vote. (Motion seconded and carried.)

Dr. J. S. Templeton: I move the adoption of the report of the Resolutions Committee as a whole. (Motion seconded and carried.)

The President: We will continue with the reports of the Reference Committees.

COMMITTEE ON REPORTS OF OFFICERS

Dr. Mather Pfeiffenberger, Alton: *Report of President.* The Committee were not unmindful of the amount of work Dr. Skaggs did in the last year. He visited each county and made a personal appeal to the members to attend this meeting. The registration shows his work has borne fruit.

Report of Secretary. The oustanding part of his report was that we have finished in the "black." He also brings to our attention the need of a properly organized membership committee in each county medical society to materially increase the membership during the coming year. The Committee thought this was a very good point. We have to build up our membership again. The other point which the Committee considered very good was, that physicians should endeavor this year of all times to keep in close touch with their legislators, and show their appreciation whenever the representatives or senator shows his interest in our work. It does not take much effort to commend the

men who have done something for us. We are all still children and like to be commended. In other words, if you have written a letter to your senator and representative, and he has heeded your request, acknowledge his kindness.

Another point of which the Committee approved was that every member of the Society should read their Illinois Medical Journal. The Committee on Medical Economics is conducting a special department which should be of interest to all members. If you have a new thought on any economic subject, the chairman of the committee will be pleased to receive it. Constructive suggestions are always solicited by this, as well as all other committees, the officers, and the Council.

Report of Treasurer. There is only one comment to make, that is in the statement of the public accountant. "Interest has been received regularly from your investment fund with no default of interest, and the average market value of the bonds are 96.5 per cent. of the par value. The total par value of the bonds held is $71,000.00 and the market value as of April 30, 1935, is $68,542.50." The Committee thought that this was worth commenting on. The Committee did not have the information and would be glad to have it, on what the average rate of interest is on bonds held by the Society.

Report of Chairman of the Council. About the biggest thing in the reports of officers, in the opinion of the Committee, was the statement that during the year the Committee on Corporations Practicing Medicine carried the case against the United Medical Service through to a victory—the decision of Judge M. L. McKinley having been printed in the April, 1935, issue of the Illinois Medical Journal. Every doctor in the State of Illinois should be interested in reading this report.

I move the adoption of the report of the Reference Committee on Reports of Officers. (Motion seconded and carried.)

The Secretary: In answer to Dr. Pfeiffenberger's question, the interest rate on bonds will average about four and one-half per cent.

COMMITTEE ON REPORTS OF COUNCILORS

Dr. G. C. Otrich, Belleville: The Committee met and went over the reports of the Chairman of the Council and the Councilors, and have the following report to make.

In the report of the Chairman of the Council the Committee approved the point made by the subcommittee studying Group Hospitalization, in which it was stated that the majority of the board of control must be in the hands of the local county medical society, and members of this board of control should be elected in rotation.

The Legislative Committee has as usual carried on its work effectively and satisfactorily, the committee is in accord with tenets of the report of the Chairman of the Council and recommend to said Council further investigation of said contract and corporation practice.

This Committee is in accord with the resolution pertaining to the elimination of coroners in the various countics of the state.

In going over the individual reports of various Councilors the Committee thought the reports were very good. They have kept the organization in their various districts in very good condition considering the times. In some places where the Councilor is absolutely responsible for the districts, attendance of delegates and information forwarded to the Secretary, the Councilors in some localities should make a little closer contact. Some Councilor districts are showing a little laxness and more stress should be laid on them.

I move the adoption of the report. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried.)

COMMITTEE ON REPORTS OF STANDING COMMITTEES

Dr. R. L. Green, Peoria: Your Committee have examined the report of the *Public Relations Committee* and commend them for their work. Particular attention should be paid by the members to their bringing about better feeling and relation to insurance company work as well as settling of claims.

Legislative Committee. This is one of the important branches of the Society. The eternal vigilance of the Committee combined with the digesting of the volume of bills that they may not contain hidden poison to our profession, is a herculean task. Their report should be read carefully by each member, that they may speak with more force to their local representatives. We accent the importance of prompt response when you receive circulars from their office.

Medico-Legal Committee. The Medico-Legal Committee have done their usual amount of good work. A great deal of this does not appear in the press by reason of the method of stopping some of these cases. The cost of trial and investigation would be reduced if every member would carry liability insurance too. The Medico-Legal Department is worth all the members pay for the Society membership.

The report of the *Committee on Medical Education and Hospitals* is a good digest of the progress in the state of the efforts of the Council on Medical Education and Hospitals and the Association of American Medical Colleges. Their recommendation for postgraduate work should be read by the officers of each county society in meeting that the rank and file of the membership acquaint themselves with the facilities in Illinois.

Educational Committee. Their work of education of the lay press and people through the different avenues should be assisted in every way possible. Their contact should be continued by members of any organization that they may be affiliated with. Your education of the evils of health insurance and contract practice may be complete but this should be passed on to the public.

We also had for consideration the report of the Committee on Relations to Public Health Administration, which was not published and which reads as follows:

The public health nursing section of the Illinois State Nurses' Association, wishing to maintain and enforce the standards of nursing care, have asked this Committee to sanction a series of short articles to appear in the ILLINOIS MEDICAL JOURNAL. These articles are to cover:

1. A definition of public health nursing including its objectives, kind, and types of services.
2. Ways of measuring public health nursing services.
3. The minimum qualifications of a public health nurse.
4. The public health nursing act where nurses are employed with tax paying funds.

This Committee feels that these articles should be accepted and published if accepted by the Editor of the JOURNAL and so recommend.

(Signed)
Frank F. Maple, *Chairman.*
Frank Heda,
Thomas Meany,
L. O. Frech.

The Reference Committee recommends that this matter be referred to the Editor of the ILLINOIS MEDICAL JOURNAL, and I so move. (Motion seconded by Dr. E. C. Kelly, Peoria.)

Dr. G. Henry Mundt, Chicago: The Editor should not be disturbed with that. I would suggest that the latter part be referred to the Council.

Dr. S. E. Munson, Springfield: I so move.

The Secretary: This matter came before the Council some months ago. At first the State Committee of the Illinois Nurses' Association wanted to write articles and have them published in the ILLINOIS MEDICAL JOURNAL as written. This was taken up before the Council and we were authorized to inform the Nursing Group that we would be compelled to exercise censorship over their material, and that this material should be referred to Dr. Whalen and his Editorial Committee. If this report is approved that is the way the matter will be handled. It will be referred to Dr. Whalen and his Committee for whatever corrections or changes they wish to make.

Dr. L. O. Frech, Decatur: In signing that I took it to mean that it would be acted upon by Dr. Whalen, otherwise I would not have signed it.

Dr. George Haan, Aurora: May I ask Mr. Chairman, what the expense of the physicians' defense fund is which was mentioned in the report of the Reference Committee.

The Secretary: The expense to the Society will average between $8,000 and $9,000 a year. Occasionally a case will be carried to the Supreme Court and the amount is increased. We have had cases that cost as much as $8,000 to defend before the Supreme Court. The membership fee of the individual member is now five dollars. This is divided into four parts, and one dollar of each membership fee goes into the Medico-Legal defense fund. Probably under the present per capita that is not going to be sufficient for the purpose. At present it amounts to more than $8,000. The Medico-Legal Committee defends its members to the Supreme Court but pays no judgment.

Dr. George Haan: The question is whether the report of the Committee should be adopted. Personally I do not think any man from whom anything could be collected would be willing to submit his case to the defense fund set-up, because I think it would be dangerous, and he would be paying the rest of his life because they pay no judgment.

Dr. J. R. Ballinger, Chicago: I have been a member of the Medico-Legal Committee for sixteen years and I am positive that there is no doctor in Illinois who has ever paid one penny to defend a suit for malpractice. There have been some judgments against doctors and some judgments that have been paid. There was one suit for malpractice in Illinois in the last year; it was a sponge case not far from where Dr. Haan lives. Sponge cases are dangerous, so are radium and x-ray cases. It has been the policy of the Medico-Legal Committee to recommend to the members of the Illinois State Medical Society to carry besides the membership in the defense fund, insurance against judgment.

The President: I would like to say to Dr. Haan, that we have had a great loss in membership in the last year and that has caused us to stretch the dollar a little more. Another thing, we should take into consideration that we have all the privileges of this great Society for the very small investment of five dollars. I always thought the Salvation Army could make a dollar go farther than anyone else. I am now convinced that the Illinois State Medical Society can make a dollar go farther than anyone. The statement has been made that no doctor has ever had to dig down in his own pocket. Think what you get for five dollars! You would not expect to go into a grocery store or the ten cent store

and carry out a bundle as big as the State Society gives you for five dollars.

Dr. G. Henry Mundt, Chicago: I am surprised that the gentleman is not aware that the statement is made that this is only for defense. Whether this defense is of any value or not, all one needs to do is to talk to the officers of the Medical Protective Company. These officers hold it as a very valuable thing. You will note further in the Committee's report they recommend the carrying of insurance to pay judgment. Personally I think this Committee of which Dr. Ballinger is the Chairman and has been for many years, function beautifully.

Dr. Alexander B. Magnus, Chicago: I would like to cite to you a personal experience in defense matters, not malpractice. Some few years ago I had the misfortune to have a suit brought against me by an irresponsible woman who was found mentally insane by the medical staff of the Psychopathic Hospital in Chicago. Because of political connections the woman was set free by the Judge contrary to the findings of the staff. At that time I was not aware that the Society had a medical defense fund. I took the case to a lawyer, who owed me a fee for caring for his wife in my institution. The woman sued me for having sent her to the Psychopathic Hospital and for false imprisonment for $100,000. When that case came up a year later my attorney did not follow the case. I did not know that it came up in court. They obtained an *ex parte* judgment against me for $10,000. The case has gone on for seven or eight years and has cost me $4,000. I have been twice humiliated by having my name appear in the newspapers in connection with the case. Suppose I had come to Dr. Ballinger or to the Medical Society there would have been no case against me, because every physician has the privilege to express an opinion as to mental status. From my experience I believe the most valuable possession of the Medical Society that the physician gets is the medico-legal protection.

Dr. S. E. Munson, Springfield: I wish to cite a case. One of the men in Springfield called me up one night and told me of the predicament of a man in an adjoining district to mine. He was sued for malpractice and on account of having let his membership in the Medical Society lapse, he did not think he was eligible to defense by the Medico-Legal Committee. I do not think there is any other thing that spurs our men to keep their membership in the Society than our defense. They asked my opinion. I said I thought it was best to telephone Dr. Ballinger. This I did and he came down on the night train. The men from our town went over and defended this man and cleared him.

(The motion to refer the matter contained in the report of the Committee on Relations to Public Health Administration to the Editor of the Journal, carried).

Dr. R. L. Green: I move the adoption of the report of the Reference Committee on Reports of Standing Committees. (Motion seconded and carried).

The Secretary: The Winnebago County Medical Society reports a total registration up to this hour of 1530-1170 physicians and 360 women. All those who have not yet registered are urged to do so at once.

COMMITTEE ON REPORTS OF COUNCIL COMMITTEES

Dr. J. J. Pflock, Chicago: Your Reference Committee wishes to make the following report:

We have carefully read the report of the *Educational Committee,* and would like to call the attention of the House of Delegates to the masterly way and the important part this Committee played in bringing scientific medicine before such a large number of people from all over the world during the Century of Progress in Chicago, Illinois. The time and energy spent by the Secretary, Miss Jean McArthur, deserves the highest comment. The Radio Talks under the careful guidance of this Committee, and the efforts to clean the air of quackery and give the public sound and ethical advice as to their health, should receive the support of every member of our profession.

We would recommend that our State Committee act in conjunction with a like Committee from the American Medical Association in a united effort to prevent broadcasters from practising medicine, and to drive the quack and his pharmacopeia of self-administering drugs off the air.

Scientific Service Committee. Your Committee highly recommends the work done by the Scientific Service Committee to bring postgraduate work to our colleagues in the rural districts of the state, and recommend that this work be continued, as one of the outstanding educational functions of our Society.

Medical Economics Committee. In reviewing the report of this Committee one is impressed by the tremendous amount of work done by this Committee, and the great amount of education in medical economics which has come to our members through the efforts of this Committee. We would recommend that closer contact be made with a Committee of like function of the American Medical Association, so that in the near fu-

ture the path of medical economics may be strewed with roses and that we may live happy ever afterwards.

Veterans' Service Committee. Your Reference Committee wishes to endorse the efforts of your Veterans' Service Committee in the program to make America safer and better for Americans, and may their efforts for the payment of the bonus be crowned with success.

Advisory Committee to the Illinois Relief Commission. In studying the report of this Committee your Reference Committee wishes to express to the Committee the great appreciation of the general practitioner, who through the efforts of this Committee received so much consideration, remuneration and help, which seemed hopeless in the beginning. The entire community owes a great deal to this Committee in handling a condition to the satisfaction of us all, which in the beginning looked dreary and dark to say the least.

Mr. President, I move that the report of these various Committees be adopted as printed in the Annual Report. (Motion seconded and carried).

COMMITTEE ON REPORT OF COMMITTEE ON SCIENTIFIC EXHIBITS: REPORT OF COMMITTEE ON SOCIAL SECURITY PROBLEMS; REPORT OF EDITOR

Dr. C. E. Humiston, Chicago: Your Reference Committee having under consideration the report of the *Committee on Social Security Problems* begs to report as follows:

The clear declaration of purpose from the Committee as set forth in its brief report is to be commended. It is well to announce to the general public that organized medicine is fully alive to the perplexing problems that confront the American people today, and to let it be known that the medical profession will lose no opportunity to lend its support to the solution of these problems. We expect much from the activities of this Committee.

The *report of the Editor* is a graphic and masterful word picture of the growth and development of scientific medicine in Illinois.

The Illinois Medical Journal is known far and wide as the most outstanding medical publication of its kind in the entire country. Its editorship has been uniformly capable and courageous and characterized by a keen foresight that has run months and even years ahead of all its competitors. The Illinois Medical Journal is especially fortunate in having for its editor a real man undaunted and unterrified by a philosophy which at its source does not hesitate to enforce its mandates through a resort to Siberia or the firing squad.

The Committee also had under consideration the report of the *Committee on Cancer* which was not published. The Committee recommends that this report be endorsed and referred to the Editor to publish all or part of it as he sees fit.

The Committee likewise considered the letter from Dr. Bauer of the American Medical Association on a *Program of Immunization Against Diphtheria.* The Committee recommends that this letter be endorsed and referred to the Editor to publish all or part of it as he sees fit.

Mr. President, I move the adoption of the report of the Reference Committee. (Motion seconded and carried).

COMMITTEE ON ATTENDANCE

The Secretary: We have now certified 53 delegates from downstate, 30 Chicago Medical Society, and 17 Councilors and officers, a total of 100, which is unusually good for the second session of the House.

The Secretary: We have some additional names for Emeritus Membership in this Society. All have been made honorary members of their Branch or local Society. These are George Zeller, recommended by Peoria Medical Society for Emeritus Membership at a meeting held March 19, 1935; A. W. Williams, Chicago; E. S. Stewart, Chicago; C. R. Thomas, Roodhouse, and J. S. Billings Whitehall.

Also for affiliate membership in the American Medical Association we have the name of C. W. Hawley, Chicago. He is 81 years old, and eligible for such membership. I believe the House should elect these members to Emeritus Membership and nominate Dr. C. W. Hawley for affiliate membership in the American Medical Association.

Dr. G. Henry Mundt, Chicago: I move that the recommendation of the Secretary be adopted. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried).

The President: The next order of business is fixing the per capita tax for 1936.

Dr. V. A. McClanahan, Aledo: As Secretary of Mercer County Medical Society, I would like to thank the House of Delegates for the reduction in dues last year. I move that the per capita tax be five dollars for 1936. (Motion seconded by Dr. I. F. Harter, Stronghurst, and carried.)

The President: The next order of business is the selection of a meeting place for 1936.

Dr. J. R. Neal, Springfield: Springfield has a perennial invitation for you. We want you on every even year that we can get you.

Dr. C. E. Wilkinson, Danville: I move that we accept the invitation to go to Springfield. (Motion seconded and carried.)

Dr. J. S. Templeton, Pinckneyville: I move that the House of Delegates adopt a resolution extending our very sincere thanks to the physicians of Rockford and Winnebago County for their hospitality and very splendid entertainment which we have enjoyed, and for their entertainment to the ladies, and that the Secretary be

instructed to follow the usual routine in thanking the various people responsible for the successful conduct of this meeting. (Motion seconded and carried.)

Dr. G. Henry Mundt, Chicago: For three years I came before this House asking approval of a resolution which I was going to introduce in the House of Delegates of the American Medical Association, to the effect that men on staffs of hospitals approved for internship be members of their local medical society. For two years that was introduced in the House of Delegates and went to the Reference Committee. This Committee each time said that while they felt the thing was right in principle they were not yet ready to recommend its adoption. The third year I went to the Reference Committee and told them that if they did not approve it, the thing would be passed in the House. Later the Committee brought in the same report as in the two previous years. With the help of the Illinois delegates and about fifteen or twenty other discussors, this resolution went over. I think it is one of the most efficacious things that we have had in the past several years for the welfare of organized medicine. If you will read the report of the Council on Medical Education and Hospitals published two weeks ago in the *Journal of the American Medical Association*. You will note that that proposition is now on the way to accomplishment. I feel it will be a definite advance for medicine.

Dr. E. P. Sloan, Bloomington: I move you that it be the sense of this House that the Reference Committee plan of handling the reports of officers and committees has proved to be satisfactory, and that it be continued. (Motion seconded by Dr. G. Henry Mundt, Chicago, and carried.)

The Secretary: In this connection I would like to say a word about the certification of delegates. Dr. Skaggs and I went over the list of delegates that had been certified before this meeting. It was rather difficult to determine whether certain men would or would not be present. In this plan of referring matter to committees, it is necessary to have a full list of delegates of the component societies. I believe this appointment of Reference Committees will stimulate the sending in of the list of delegates from component societies ten days before the meeting, as stated in the constitution. If these lists are sent to us at least two weeks before the meeting, the Reference Committees can be selected, and their names published and duties assigned in the handbook. Each delegate should keep this in mind and should insist that next year the County Society send to the Secretary two weeks before the annual meeting a list of the delegates. We sent about four or five hundred letters to get the list of delegates published in the handbook. This is an unusually large list. I believe this should be made known to each county society. The Chicago Medical Society sends in its *Bulletin* containing a list of their delegates. Unfortunately, many of these delegates are not here and the alternates had to be seated.

Dr. J. S. Nagel, Chicago: I would like the delegates to give a rising vote of thanks to the Chairman for his courteous handling of the business of the House of Delegates. (Motion seconded and carried.)

Dr. Mather Pfeiffenberger: I move we adjourn *sine die*. (Motion seconded and carried.)

The House of Delegates adjourned *sine die* at 11 A. M.

Correspondence

REPORT OF THE TRANSACTIONS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, JUNE 10-13, 1935

To the Officers, and Members of the Council,
Illinois State Medical Society.
Gentlemen:

In accordance with the instructions given by the Council, your Secretary accompanied the Illinois delegates to the 1935 Annual Meeting of the House of Delegates of the American Medical Association, at Atlantic City. The entire Illinois Delegation was present, and participated in the deliberations at each session.

The House of Delegates held the first meeting on Monday morning, June 10, with the usual routine addresses by the President, and President-Elect. Dr. Bierring, the retiring president, gave a most interesting and short address of the progress of the past year, and Dr. McLester, the incoming president, referred principally to the progress in medicine and the necessity for retaining individualization to maintain the high standards that have been developed.

The report of the Secretary related to progress of the Association, the membership, financial conditions, etc. For the first time the total membership in the American Medical Association has exceeded 100,000 and the total

fellowship nearly 62,000. Reference was made to the special meeting of the House of Delegates in Chicago last February, at which time the House unanimously reaffirmed its previous statements opposing all forms of compulsory sickness insurance.

The Board of Trustees report was very comprehensive and contained much informative data. A report of the condition of the Journal of the A. M. A., showing that more than 85,000 physicians receive it regularly throughout the country. A total of 6,646 Illinois physicians are on the mailing list of the Journal. References were made to the progress of the special Journals published by the A. M. A., including *Hygeia,* which had a small financial loss last year of $1,059.55 as compared with a loss of over $30,000 the previous year. Eighty-one per cent. of the subscribers to *Hygeia* are laymen.

The work of the Councils and Bureaus of the Association were enumerated in detail showing the immense amount of work the Association is doing for organized medicine, as well as for the protection of the public as a whole.

The report of the Bureau of Legal Medicine and Legislation under the Directorship of Dr. Wm. C. Woodward was most interesting. A survey of all Federal and State Legislation affecting medical practice during the past year was reported. Reference was made to the development of the Health Insurance ideas and plans with special reference to the Wagner-Doughton-Lewis Bill, and the Epstein Bill was reported in detail. The efforts of the President's Committee on Social Security to develop a system of "state medicine," which has been previously presented to you in detail, was reported by Dr. Woodward.

The activities in the various states in caring for the unemployed indigents on relief, was reviewed. It was quite evident to many of us that the Illinois plan is perhaps one of the best in operation anywhere throughout the country. Work of the other Councils and Bureaus were also made in the report of the Board of Trustees. The total assets of the Association on December 31, 1934, was given as $3,686,443.72.

Special attention should be called to the unusually fine scientific exhibit at this meeting, which seemed to be the most popular feature of the entire meeting. Many dozens of outstanding exhibits were shown, with the men who developed the exhibits largely in attendance to give the demonstrations, and point out features of special interest in each of them. Dr. N. S. Davis, Secretary of the Illinois Scientific Exhibit Committee, and your Secretary, spent quite a little time among these exhibits and we succeeded in getting the promise of a number of Illinois exhibitors to develop a similar exhibit for the 1936 Annual Meeting to be held in Springfield. Many ideas relative to types of exhibits to popularize our scientific exhibits next year, were also developed.

The speaker of the House appointed his reference committees during the first session, and three delegates from Illinois were placed on these committees. Many resolutions were introduced during the first meeting, and were referred to the designated reference committee for study and recommendation at a subsequent meeting. These resolutions were of many types, from the usual one asking for a committee to study the subject of birth control, to one asking the House to approve the idea of compulsory health insurance.

The usual Tuesday afternoon executive session of the House of Delegates was held, and several resolutions which had been introduced during the morning, were considered at the special session, after they had been reviewed by the reference committees.

The special report of Dr. R. G. Leland, Director of the Bureau of Medical Economics, was carefully considered, and a copy of this report was handed to each delegate for his guidance. The report showed that this Bureau has done an immense amount of work during the past year. In compliance with the instructions given at the special session of last February, the Bureau of Medical Economics reported a study of nearly 200 different experiments which are being conducted, or considered by county medical societies in the United States, organizations for various types of medical services.

These experiments are of so many different types that it is almost impossible to classify them. We find these plans proposed, or in operation, according to number of counties, as follows:

California	9	New Jersey	1
Florida	1	New York	6
Georgia	1	Ohio	1
Iowa	57	Oregon	1
Kansas	11	Pennsylvania	8
Kentucky	1	South Carolina	1
Louisiana	1	Texas	6
Michigan	6	Washington	9
Missouri	2	Wisconsin	6
Nebraska	1		

Plans involving prepayment for hospital care under supervision of county medical societies, plans where approval only of county societies have been given, and plans involving group hospitalization where same has been studied, and some action taken by state or county medical societies, were enumerated.

A tentative classification of medical plans was undertaken.

A.—Special fee schedule (for low income groups and those temporarily unemployed).

B.—Medical care for the indigent. Contract or agreement with proper officials.
1. Specified sum payable quarterly, or annually.
2. Special fee schedule.
3. Per capita (payment based on indigent load).

C.—Minimum guarantee to physicians in communities not otherwise able to secure resident physicians.
1. Part time health officer.
2. General medical service, including care to indigents.
3. Combined curative and preventive medicine supplemented to regular medical fees.

D.—Voluntary budgeting for medical care.
1. Post payment for medical care.
   (a) Medical Service Bureau.
   (b) Part pay, or reduced fee.
   (c) Central medical service.
2. Prepayment for medical care. Organized for industrial groups only, or all persons below

a stated income.
(a) Medical Service Bureaus.
(b) Hospital Associations.
(c) Community medical service.

E.—Voluntary budgeting for hospital care.
Prepayment for hospital facilities only.

F.—Special services for procedures.
Cooperation with health department or other agencies.

G.—Regulation of hospital clinic and dispensary admissions and routing of hospital traffic.

H.—Industrial group service.

New York County is the largest society with a special fee schedule to provide medical care to those in low income class. Their fees will be based on the Workmen's Compensation Schedule. The city is to be districted, and the society members agree to care for patients at the special fee. A list of physicians is to be kept at each district headquarters.

Medical care of indigents with special fee schedule is the type to be found in Iowa where the medical societies and the board of supervisors enter into contract whereby adequate medical care is provided by members of the society. This plan has been in operation in some Iowa counties for as long as 25 years.

The Johnson County Iowa County Medical Society (Iowa City) has a per capita basis of pay for caring for the indigent. $1.25 per month is the allowance for medical care per "registered indigent," the list being prepared by social service workers, who also issue authorization slips.

An illustration of the volunteer budgeting for medical care is the system in operation in San Diego County, California. They have a central clinic committee including the county medical society, community welfare council, county and city health departments, social health departments, school health departments, Navy Relief, two hospitals. Care is given to the low income class. The clinic service investigates the financial condition of the applicants, fixes the fees and terms of payment and routes of patients. It does not collect medical fees, and less than 1 per cent. of the applicants for service fail to pay. This service was started in January, 1933.

Alameda County, California; Wayne County, Michigan; Nassau County, New York; and Washington, D. C., are other large communities having a somewhat similar service for providing medical care, although the method of collecting fees is variable in these communities.

The Bureau of Medical Economics of the A. M. A. held a special meeting in Chicago on April 27, 1935, at which time about 25 representatives of county societies where methods for caring for low class income groups are in operation. Reports of the methods of operation in each of these experiments were given. In addition to the 10 point program of principles for the guidance of county medical societies desiring to experiment in providing medical care, as adopted at the Cleveland session of the A. M. A. in 1934, it was recommended at this special meeting that the following principles be added to those previously given:

1. A preliminary study should be made in each community to determine the need for any change in medical service.

2. The patient should have freedom of choice of physician.

3. The plan should be completely controlled by the county medical society. This did not mean that only physicians could be members of the Board of Control, but they should control it.

4. Payment for medical service to low income groups should be based on the ability to pay, rather than to have a fixed minimum fee schedule for all individuals.

5. There should be a definite plan to determine the individual's ability to pay for services.

6. There should be some centralized system of records and bookkeeping.

7. Any plan contemplated should contemplate complete medical service.

8. The administration of any plan should include provisions for a service charge to provide for a central office, and also provide a reserve for unusual emergencies or catastrophic load.

9. There should be recognition of standing of medical specialties, and resistance to exploitation by corporations.

From the above it is quite evident that the Bureau of Medical Economics has been attempting in every way possible to carry out the mandates of the House of Delegates, and that they have accomplished a great deal in a comparatively short time. It is the intention of this Bureau to continue to investigate every possible plan for providing medical care under medical society control.

During the past year, the Bureau has developed, published, and has passed on to state and county medical societies, many interesting and highly valuable pamphlets and brochures pertaining to the health insurance movement, methods of providing medical care, the "catechism" of sickness insurance, contract practice, group hospitalization, and covering many other important economic subjects.

In order that you may have again the ten principles as adopted at the 1934 Annual Meeting at Cleveland before you, we are attaching them to this report.

1. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

3. Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

4. The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical

service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine adequacy and character of such institutions. Their value depends on their operation according to medical standards.

6. However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered. ("Immediate" in this connection is here interpreted as meaning that a part of the medical service should be paid for by the patient at the time the service is rendered.)

7. Medical service must have no connection with any cash benefits.

8. Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.

9. Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

10. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

Among the resolutions introduced at the meeting we find two referring to the question of contraception, two relative to the broadcasting of mis-information pertaining to medicaments, foods and cancer, these quite similar to the resolution passed last year at Cleveland, as submitted from the Illinois delegation, one referable to the appointment of a committee to investigate and formulate standards governing the manufacture of surgical catgut, method of sterilization, etc., one relative to the care of indigents and payment to be made by funds received from taxation, one on medical service organizations, requesting a further study of the operation of same and a subsequent report, one relative to the establishing in medical schools of courses in medical economics, and one requesting that membership in county and state medical societies be a pre-requisite for qualification as specialist on the list of specialists of the Council on Medical Education and hospitals of the A. M. A.

The resolutions on contraception were not approved, and those relative to social economic "experiments" were also eliminated, as the A. M. A. through the Bureau of Medical Economics is now studying all county society operated "experiments" in providing medical care to indigents, and in the low income classes.

A resolution was approved whereby the ethical practices of hospitals according to the standards in the Principles of Medical Ethics of the A. M. A. shall be considered in the standardization of hospitals. A resolution was introduced asking for the enforcement of a ruling made in 1902 forbidding the solicitation of votes for candidates at the annual sessions. The Judicial Council in reporting on this resolution believe that the ruling is illegal and unenforcible.

A resolution was unanimously passed approving the work of the Bureau of Medical Economics, its reports, and publications, which have been prepared during the past year. There was a doubt as to the advisability of approving any plan for group hospitalization, which was approved by the House.

A suggestion that a plan be developed whereby the Medical Economics Bureau can receive and edit all economics data, and submit same to the state and county medical societies, was unanimously approved.

During the meeting, a delegate requested that the House receive some authoritative information from a California member, relative to the situation in California, and pertaining to the action of the California House of Delegates at their special meeting last March, when they approved the idea of compulsory health insurance, and selected committees to cooperate with their state legislature in drawing up a suitable bill.

Dr. T. Henshaw Kelly, Chairman of the Council of the California Society, made the presentation. Dr. Kelly said they have three unusual problems in California: 1. Freedom of licensure, as members of cult groups are permitted to practice medicine and surgery, conduct hospitals, etc.; 2. Problems in connection with the practice of medicine in county hospitals; and, 3. Hospital associations throughout the state which are practicing medicine illegally and evading legal action. They began to study plans in 1929 whereby the county medical societies could supply adequate medical care on a budgeting, or insurance basis. A committee from the California legislature was appointed in 1933 to study the costs of medical care, and make recommendations as to a plan for the providing of medical care to those people in low income classes. It seemed quite evident that their legislature intended to approve some plan by law this year to accomplish this purpose.

Their society thought it better to approve the idea, and attempt to control its development rather than to oppose it, and have it forced upon them. Their society selected a committee to work with the legislative committee in drawing up a suitable bill which was done. Amendments to the bill have been made, and at this time it seems unlikely that anything definite will be done in this regard, at the present legislative session.

A resolution was introduced urging that efforts be made to legalize the restriction of the title "doctor." The reference committee believed that owing to the fact that state laws differ on this subject, the matter should be left to individual states. The subject of immigrant physicians entering practice in this country was also considered. An investigation made recently shows no increase at this time in the number of foreigners entering practice in the United States, and it was recommended, and approved that the matter be held in abeyance.

The total registration at Atlantic City was 8,469—by far the largest that has ever been registered at an A. M. A. meeting. The Canadian Medical Association held their annual meeting jointly at Atlantic City, and many of the Canadian physicians participated in the scientific programs, and in the scientific exhibit. An invitation from the Canadian Association for another joint meeting to be held in Canada before 1940, was extended, and the invitation was unanimously accepted.

The election held on Thursday afternoon was very exciting and quite interesting. There were four candidates for the office of President-elect. Dr. Jas. Tate Mason, of Seattle; Dr. Chas. E. Humiston, of Chicago; Dr. Harvey Cushing, of Boston; and Dr. J. Normal Henry of Philadelphia, were the candidates. The Illinois delegation naturally supported their own candidate. Dr. Mason was elected on the second ballot with Dr. Humiston running second.

Dr. Kenneth Lynch, of South Carolina, was elected Vice-President, Olin West was elected secretary to succeed himself, and Dr. Herman Kretschmer of Chicago was reelected as Treasurer. Two trustees terms expired, and they were succeeded by Dr. Ralph Fonton of Oregon and Dr. Jas. B. Bloss, of West Virginia.

Dr. Fred Warnshuis of California, who had been speaker of the House for the past 13 years, was succeeded by Dr. Nathan Van Etten, of New York, and Dr. H. H. Shoulders of Tennessee was elected as Vice-Speaker. Kansas City was the unanimous choice of meeting place for the 1936 Annual Meeting.

The complete transactions of the House of Delegates will appear in the Journal of the A. M. A. during the next three weeks, and each member of the Illinois State Medical Society should read these transactions carefully to realize what has been done at the 1935 Annual Meeting.

Respectfully submitted,
HAROLD M. CAMP, M. D.,
Secretary.

THE EIGHTH ANNUAL CONVENTION OF THE WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

The pre-convention board meeting of the Woman's Auxiliary to the Illinois State Medical Society convened in the Hotel Faust at Rockford on Tuesday, May 21, 1935 at 10 A. M. The president, Mrs. Lucius Cole of River Forest, presided and eighteen members answered to roll call. Reports from officers and chairmen of all standing committees were read.

Mrs. J. E. Reisch of Springfield was elected to fill the vacancy caused by the resignation of Mrs. M. B. Jelliffe, also of Springfield.

The board adjourned to the dining room of the Faust Hotel where lunch was served to the auxiliary and the Rockford women who formed a temporary auxiliary for entertainment of the convention visitors. Mrs. J. M. Severson was chairman of the luncheon.

The wives of the Rockford doctors acted as automobile hostesses under the chairmanship of Mrs. Robinson Bosworth and Mrs. C. H. Boswell and transported the members of the Auxiliary about the town during the meeting. The convention guests were taken to Rockford College Chapel for the opening business session of the convention. Mrs. Lucius Cole of River Forest presided. Dr. Gordon Keith Chalmers, Rockford College president, opened the session with prayer and Mrs. J. S. Lundholm, chairman of the temporary Auxiliary of Rockford women, welcomed the guests. Mrs. A. H. Brumback of Chicago responded to the welcome.

The president introduced Mrs. Harry J. Dooley of Oak Park, State Convention Chairman. Mrs. Dooley is the daughter of Dr. and Mrs. T. H. Culhane of Rockford, Dr. Culhane being Convention Chairman for the Doctors.

The annual reports of the officers and councilors were read and approved.

Professor Andreas Fugmann of the college music department arranged a program. Piano selections were given by Misses Priscilla Sparks, Marie Hanson and Jane Schwab. Tea was served on the Faculty porch following the program. Miss Jean Sharpe of the college faculty presided at the table which was decorated with gay spring flowers. Dr. and Mrs. Chalmers and Miss Mary Mutschler, dean of the college, received the guests and were assisted in entertaining by other members of the faculty. Mrs. John Green served as chairman of the tea.

A bridge-dinner was given on Tuesday evening for the Auxiliary at the Forest Hills Country Club. The Copeland Trio played during the dinner hour. Mrs. Lucius Cole presided at the dinner introducing Dr. R. K. Packard, who in turn introduced the speaker, Dr. C. S. Skaggs, president of the State Medical Society. He assured us that the Woman's Auxiliary adds strength to the Medical Society and spoke of our responsibilities and opportunities. He advocates going back to old ideals and ethics. The world, as he said, needs more followers than leaders, and that one should be thankful to do something worth while, even without credit. He said the Woman's Auxiliary was set into being for a purpose, as helpmates, that it is no playground. He urged us to have an ideal and follow it. Bridge was enjoyed after the program. Mrs. E. T. Leonard arranged the dinner.

Mrs. Maurice P. Rogers opened her attractive home on Spring Creek Road for a breakfast at 8 A. M. on Wednesday. The members of the Rockford temporary Auxiliary entertained the board members.

The business section of the Auxiliary convened at 9:30 A. M. at the Faust Hotel. The meeting was opened with a Memorial service conducted by Mrs. A. G. Aschhauer of Springfield. A flute solo, "Reverie," was given by Mrs. David McCarthy of Springfield accompanied by Mrs. Dorothea Vogel of Rockford. Mrs. Aschhauer read the following eulogy which she had written:

"May is the month of flowers—the previous symbols of love. With all their fragrance in bloom, we dedicate them with reverence to the memories of our absent ones. Today we pay a loving tribute of respect to our departed members. In obedience to a beautiful custom, we pause before the altar of remembrance to drop a tear of memory, wreathing with garlands of love.

"The mystic clouds of memory draw our departed friends into view, and we who still walk the earth reverently step aside that they may stand here for a space in the old likeness and that we may hear their hushed voices speak again.

"The Doctor's wife—she has gone, but the influence of her pure, unselfish, upright life settles like a benediction upon those who knew her best. She has passed

from our midst. She has passed as we shall pass, paid nature's debt, leaving nothing behind her but good deeds, and the memory of her many virtues.

"Of those we mourn many were with us last year. Their names have been transferred from our active rolls to the memorial tablets of the absent ones. But somehow I know they are conscious of our actions today and that while we cannot see their faces, they are looking down upon us from that other and better world. To the undying dead who live in the memories of affection we pay tribute, which have made the world better for their having lived in it. Let us paraphrase Shakespeare and say: 'Their virtues live in brass; their evil manners we write in water.'

"Life is like a rainbow that spans brilliantly the two extremes. Our ending is no more strange than our beginning. God, who ordained the beginning, has also ordained the end. Flowers of the valley spring up. The violet, the lily, and the rose, bloom for a while in all their variegated beauty and loveliness, but perish when the grey livery of autumn is thrown over the face of nature. Man himself whom God has distinguished above all the works of his hand, finally yields to that stroke that consigns him to the quiet of oblivion. The beautiful lessons taught us, inspire us with the hope and the assurance that beyond the gloom of the grave there is a life of immortality, aand that we, too, shall live again forever in the beautiful gardens of God.

"So as children, sorrowfully, yet clear eyed and unafraid, in reverence we leave them with their God, and again we say good-bye but not for long, for as the shadows deepen and the eventide comes, we, too, shall lie down to sleep, to rest in peace.

"There are stars that go out in the darkness
Whose silvery light shineth on;
There are roses whose perfume lingers
When the flowers are faded and gone.
There are hearts full of love and sweetness
Whose life current no longer flows;
Still their goodness lives on with the living
Like the soul of the star and the rose."

Mrs. H. B. Henkel of Springfield followed this by prayer. The service was in memory of:

Mrs. H. J. Stewart, Cook County.
Mrs. C. F. Kurtz, Cook County.
Mrs. J. J. Gill, Cook County.
Mrs. A. G. Bosler, Cook County.
Mrs. H. F. Becker, Vermilion County.
Mrs. George Kairun, Vermilion County.
Mrs. C. W. Milligan, Sangamon County.

The final report of the Credential and Registration Committee was given by Mrs. Imas Rice of Aurora, showing the following members present:

Board members	24
Delegates	20
Alternates	7
Members	43
Members at large	2
Guests	164
	260

The annual reports of the chairmen of standing committees were read and approved. Mrs. H. B. Henkel, Hygeia Chairman, reported 233 subscriptions to Hygeia, the quota being 100.

Mrs. R. F. Stanton, revisions chairman, read the following revision to the by-laws which was adopted:

Article II, Section (b), amended to read:

"In March elect Delegates and Alternate Delegates to the annual session of the Woman's Auxiliary to the American Medical Association one of whom shall be the immediate Past President and all to be elected in accordance with its Constitution and By-Laws."

The annual reports of the county presidents were read and approved.

Mrs. L. B. Joslyn of Maywood, chairman of the nominating committee, read the report and the following officers were elected:

President-elect—Mrs. F. P. Hammond, Chicago.
First Vice-President—Mrs. A. B. Middleton, Pontiac.
Second Vice-President—Mrs. N. M. Percy, Chicago.
Third Vice-President—Mrs. A. H. Brumback, Chicago.
Recording Secretary—Mrs. I. L. Foulon, East St. Louis.
Treasurer—Mrs. William Raim, Chicago.
Councilor First District (to serve 2 years)—Mrs. Imas Rice, Aurora.
Councilors Third District (to serve 2 years)—Mrs. Lucius Cole, River Forest; Mrs. E. J. Meyer, Chicago; Mrs. Carl Hedberg, Chicago.
Councilor Seventh District (to serve 1 year)—Mrs. Thomas D. Laney, Salem.
Council Eighth District (to serve 2 years)—Mrs. E. S. Allen, Arcola.
Councilor Tenth District (to serve 2 years)—Mrs. R. F. Stanton, East St. Louis.
Councilor Eleventh District (to serve 2 years)—Mrs. E. R. Steen, Joliet.

Mrs. Cole introduced the newly elected officers and the new president, Mrs. W. D. Chapman of Silvis, responded.

Mrs. G. Henry Mundt of Chicago presented Mrs. Cole with the president's pin.

The resolutions committee, consisting of Mrs. N. M. Percy, chairman, Mrs. H. B. Henkel and Mrs. A. H. Brumback proposed a resolution thanking the doctors' wives of Rockford for their hospitality during the convention. A rising vote was taken which was unanimous. The business session adjourned.

Mrs. Cole presided at the president's luncheon at noon at the Rockford Country Club and introduced the incoming president with the other newly elected officers of the Auxiliary. Dr. C. B. Reed, president-elect of the Illinois State Medical Society, was introduced by Dr. T. H. Culhane of Rockford. Dr. Reed read a paper of special interest to doctors' wives. Golf was enjoyed by those who cared to play. County Auxiliary presidents had a conference with Mrs. Chapman. Mrs. C. A. Cibelius was in charge of the places for the luncheon and golf.

Late Wednesday afternoon the guests and their hostesses motored down the Blackhawk trail to Oregon

and had tea at the Rock River Golf Club. Mrs. L. Warmolts of Oregon was in charge of the tea.

The social climax of the convention was the president's dinner and dance at 7 P. M., Wednesday, in the ballroom of the Faust Hotel.

(Mrs. L. B.) Alice M. Joslyn,
Chairman of Press and Publicity.

AESCULAPIAN SOCIETY

The Aesculapian Society of the Wabash Valley held its 85th annual meeting, June 6, at Crawford County Country Club, Robinson, where it presented the following program, preceded by a golf tournament and followed by a dinner.

1. "Typhus Fever"..R. B. Armitage, Lawrenceville, Ill.
2. "Diagnosis and Treatment of Sterility in the Female".....Paul J. Bronson, Terre Haute, Ind.
3. "Cancer with Reference to the Breast".....F. H. Jett, Terre Haute, Ind.

Intermission.

4. "Thrombophlebitis and Embolism".....O. O. Alexander, Terre Haute, Ind.
5. "Deficiency Diseases"..E. J. Wheatley, Danville, Ill.
6. "Medical Economics".....A. M. Mitchell, Terre Haute, Ind.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy announces two important events:

1. An instruction class covering the field of physical therapy for September 5, 6, 7, 1935.

2. The fourteenth annual scientific and clinical session for September 9, 10, 11 and 12, 1935.

Both of these events will be held at the Hotel Kansas Citian, Kansas City, Missouri, and every detail has been arranged to give the busy practitioner and technician a full week of intensive study in physical therapy.

Dr. Franz Nagelschmidt, formerly of Berlin and now of London, England, will participate in the course and in the convention program. There will be symposia on many subjects, including arthritis, fever therapy, and short wave; clinical group conferences in the various specialties, and a joint meeting on Tuesday evening, September 10, with the Jackson County Medical Society. A more representative group of teachers and clinicians has seldom been brought together for a medical gathering. The scientific exhibits should prove of unusual interest.

Preliminary program and circular of information may be secured by addressing: American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

WHEN SILENCE IS GOLDEN

"How is it," asks a writer, "that widows always seem to marry again?" It would be unkind to put forward the theory that it is because dead men tell no tales.—*Punch.*

EFFECT OF ANTERIOR PITUITARY-LIKE PRINCIPLE FROM THE URINE OF PREGNANCY ON UNDESCENDED TESTES IN MAN

In spite of the apparently clearly defined cases in which descent of a cryptorchid testis occurred during the administration of pregnancy urine extracts, much skepticism has been expressed by physicians as to the efficacy of this form of therapy. Accordingly, Bruce Webster, New York (*Journal A. M. A.*, June 15, 1935), presents additional cases in the hope of establishing further the rationale of the procedure and providing additional data as to dosage. Of eleven cases of undescended testes which had been treated with pregnancy urine extract, the testes descended into the scrotum in ten instances during treatment. The one case in which failure occurred was a man of 26 who had had a previous exploration of the inguinal canal in an effort to locate the testis. The dosage of the pregnancy urine extract used was greater than in most of the other previously reported cases. Beyond slight erythema at the site of injection, no reactions were encountered. The incidence of sucessful descent was great enough to make it appear that this method of therapy should be tried before operative procedure is considered. It seems advisable to institute therapy at as early an age as possible, in order to prevent destruction of the spermatogenic function of the testis. Although spontaneous descent may occur up to the age of puberty, it does not appear desirable to wait until this time before starting therapy, since the testis may have already undergone considerable damage. The relatively large doses of pregnancy urine extracts and the time period over which they were given may have been important factors in bringing about the result.

BREATH ODORS FROM ALLIACEOUS SUBSTANCES: CAUSE AND REMEDY

Howard W. Haggard and Leon A. Greenberg, New Haven, Conn. (*Jour A. M. A.*, June 15, 1935), state that the odor given to the breath by onion or garlic comes from the essential oil contained in these vegetables. The oil does not, as has been suggested, reach the breath from aeration of the blood in the lungs, from pulmonary secretion, from salivary secretion, or in air passed from the stomach. It arises solely from particles of onion or garlic retained in the structure about the mouth. Quantitative experiments demonstrate this fact. The particles from which the odor arises cannot be removed completely by mechanical means; brushing the teeth and tongue and washing the mouth with soap and water fail to deodorize the breath. Similarly washing the mouth with a 80 per cent solution of alcohol is ineffective. The breath can be immediately and completely rid of the odor by washing the teeth and tongue and rinsing the mouth with a solution of chloramine. The chlorine liberated in the mouth reacts chemically with the essential oils and deodorizes them. It is probable that many cases of foul breath from other causes would be amenable to the same method of treatment.

DIABETES MELLITUS AND HYPERTHYROIDISM: REPORT OF CASE WITH FASTING BLOOD SUGAR OF 1,500 MG. PER HUNDRED CUBIC CENTIMETERS IN THE ABSENCE OF COMA

Maurice Bruger, New York (*Journal A. M. A.*, June 15, 1935), reports a case in which there was a fasting blood sugar of 1,500 mg. per hundred cubic centimeters in a diabetic patient without coma but manifesting all the signs and symptoms of marked hyperthyroidism. As far as could be learned, this is the only case on record of diabetes complicated by hyperthyroidism showing a blood sugar of more than 1,000 mg. per hundred cubic centimeters without any signs of coma, although in the present case coma undoubtedly was impending. For the first few days following the thyroid resection the clinical condition of the patient was precarious and she continued to be markedly refractory to insulin. Several days later, however, the patient responded more favorably to insulin and the daily dose could be gradually reduced. The patient manifested all the signs and symptoms of true diabetes mellitus approximately three years before any evidence of hyperthyroidism developed. The advent of the thyrotoxic state so upset the already impaired carbohydrate metabolism that very large doses of insulin were required to bring the diabetic condition under control and to permit thyroidectomy.

TREATMENT OF RHEUMATOID ARTHRITIS WITH FEVER INDUCED BY DIATHERMY

Charles L. Short and Walter Bauer, Boston (*Journal A. M. A.*, June 15, 1935), employed fever induced by diathermy in twenty-five cases of rheumatoid arthritis. In twenty cases at least temporary improvement was shown, both subjectively, in freedom from pain, and objectively, in increased point motion and occasionally in decreased effusion and swelling. This improvement was only temporary, and in only five has the gain been maintained to the end of the follow-up period of from more than three years to one year. The number of treatments given each patient varied from one to fifteen, and the usual temperature maintained was 104 F. for four hours. While no patient was seriously injured by this treatment, all looked on it as a harrowing ordeal. When the results obtained are balanced against the severity of the treatment, the authors' conclusion is that in rheumatoid arthritis the use of this method is only occasionally justified and should not be used to the exclusion of general treatment.

RÔLE OF SODIUM IN ADRENAL INSUFFICIENCY

Robert F. Loeb, Dana W. Atchley and Jules Stahl, New York (*Journal A. M. A.*, June 15, 1935), believe that if adrenal insufficiency in man is not relieved by salt administration, it will not be relieved by commercial cortical extracts given in the usual dosage. It is distinctly hopeful, however, for the future of this type of therapy that the commercial extract is entirely adequate for the healthy survival of the adrenal-ectomized dog. The studies that they have presented indicate that there is a definite relationship between sodium metabolism and the active principle of the adrenal cortex. When cortical insufficiency develops, the disturbances in sodium metabolism manifest themselves in a number of ways that have significant diagnostic and therapeutic implications. The sodium concentration of the blood is decreased because of an increased rate of sodium excretion. The diagnostic change in the sodium level becomes more apparent and specific when salt is withdrawn from the diet. The withdrawal of salt, however, may result in an adrenal crisis dangerous to the patient. Conversely, the administration of salt will frequently alleviate acute adrenal insufficiency, and the continuation of this therapy mitigates to a considerable extent the signs and symptoms of Addison's disease. When destruction of the adrenal glands is complete, salt alone will not maintain life.

APIOL POLYNEURITIS

Robert Denison, Harrisburg, Pa., and J. C. Yaskin, Philadelphia (*Journal A. M. A.*, May 18, 1935), report a case of polyneuritis caused by apiol. The subject of polyneuritis following the use of apiol is well described by ter Braak and Carrillo, who collected thirty-seven cases from the literature and reported thirteen cases from Holland. The authors' case differs somewhat from the European variety. At the outset there were severe gastro-intestinal symptoms and marked skin and mucous membrane reactions, which are not mentioned in the literature. The duration of the latent period was twenty-one days. The neurologic involvement was somewhat more extensive than in the cases reported in the European literature, appearing, however, preeminently motor, distal and symmetrical. The fact that the patient ingested an exceedingly large dose of the drug in a short period of time may help to account for the severity of the symptoms. All the cases reported would tend to show that the process is limited to the peripheral nerves and that there is no involvement of the central nervous system. The cause of this neuritis is not due to apiol but to triorthocresyl phosphate, which is contained in the abortifacient. Apiol, which is an extract of parsley, is in itself nontoxic. The fact that triorthocresyl phosphate is capable of producing neuritis has been known for a long time. The clinical course of the cases treated for pulmonary tuberculosis, the cases of jamaica ginger paralysis and those due to the ingestion of apiol show almost the same characteristics. The authors' case resembled the jamaica ginger type of paralysis. The pathogenesis of triorthocresyl neuritis would appear to depend on the selective action of the toxic substance on myelin sheaths of the peripheral nerves with secondary degeneration of the axis cylinders (periaxillar neuritis). In addition to the peripheral nerves of the extremities, triorthocresyl is reported to have caused retrobulbar neuritis.

WE HOPE NOT

Fond Parent: "Yes, Jack is one of the best football players at his school. He's the drawback!"

Original Articles

DISTRIBUTION OF ENCEPHALITIS (ST. LOUIS TYPE) IN ILLINOIS DURING 1932, 1933 AND 1934

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During the late summer and in the autumn of 1933, an outbreak of encephalitis occurred in St. Louis and Kansas City, which attracted wide attention. No epidemic of encephalitis of such magnitude had been encountered in this country prior to that time. The first report on the St. Louis outbreak in the medical literature was published by Leake[1] of the United States Public Health Service. This paper, and one which followed by Muckenfuss, Armstrong and McCordock,[2] reported that the disease had been produced in Macacus rhesus monkeys, by intracerebral inoculation with an emulsion of brain tissue from persons who had succumbed to encephalitis in St. Louis. No bacteria were obtained from the emulsion of brain tissue by the usual methods of culturing. Shortly thereafter, Webster and Fite[3] reported that an emulsion of brain tissue from fatal cases in St. Louis killed white-face and Swiss mice following intracerebral or intranasal inoculation. They demonstrated further that the filtrate obtained from the emulsion of brain tissue, after passing it through a Berkefeld N candle, was fatal for mice. This was proof that the infecting agent was a filterable virus. In addition, they found that blood from persons in St. Louis, who had recovered from encephalitis, contained specific protective substances which protected mice against the virus, while blood from normal persons contained no such substances. In a subsequent paper, Muckenfuss, Armstrong and Webster[4] reported that several strains of virus isolated by them in two separate laboratories, from brains of persons who succumbed to encephalitis, proved to be identical, and they concluded that this virus was the specific cause of the outbreak of encephalitis in St. Louis in 1933.

The successful transmission of encephalitis to mice by intranasal inoculation suggests that the upper respiratory tract may be the route of invasion in human beings. The failure of transmission of the disease to human beings by mosquitoes which had fed on persons ill with the disease was reported by Leake, Musson and Chope.[5] These investigators concluded that human carriers were responsible for the dissemination of the disease, although the rarity of multiple cases in the same household suggests that individual susceptibility is a more important factor than contagion. However, the possibility of insect transmission of the disease must be kept in mind, as Webster, Clow and Bauer[6] recently showed that Anopheles mosquitoes harbored the virus in their bodies from 21 to 42 days after feeding on mice which had encephalitis virus (St. Louis type) in the blood stream.

No discussion of the pathology of encephalitis of the St. Louis type will be included in this paper. The reader is referred to the paper by McCordock, Collier and Gray,[7] and to the monograph which was recently published by the U. S. Public Health Service[8] for a complete report on the St. Louis outbreak. There are no therapeutic measures which are specific for this disease. Symptomatic treatment, lumbar puncture to help relieve the severe headache, and hypertonic glucose solution were employed in St. Louis in 1933. Adequate amounts of fluids were given by mouth and subcutaneously to prevent dehydration.

During August and September, 1932, a sharp outbreak of an acute disease in which meningeal symptoms predominated, occurred in Paris, Edgar County, Illinois. All of the victims were adults, most of whom were over 40 years of age. The onset of the disease was very sudden, with marked prostration, vomiting, fever, severe occipital headache, vertigo and stiffness of the neck and back. Some of the victims complained of photophobia and blurring of vision. Within 24 to 48 hours a condition of drowsiness or stupor ensued, which in 37 per cent. of the cases was followed on the average by coma and death five days after onset. An observation of extreme interest was that the pulse and respiratory rates were not increased in proportion to the marked degree of illness. There were 38 persons so affected, about as many males as females. The attending physicians in Paris and representatives of the Illinois Department of Public Health made a diagnosis of epidemic encephal-

Read before Section on Public Health at Meeting of Illinois State Medical Society, Rockford, May 23, 1935.

itis. Most of the patients were not hospitalized, therefore only a small number of them received lumbar punctures. The spinal fluid was under increased pressure in these instances, and cell counts revealed from 60-200 lymphocytes per cubic m. m. No bacteria were found. Symptomatic and general supportive treatment was the general rule. No post-mortem examinations were made in the cases which had a fatal termination.

An epidemiological study was made by Houston,[9] a member of the staff of the Illinois Department of Public Health, but the source of the disease could not be traced. Food and water appeared to play no part in the outbreak. In one instance a relative of one of the victims from another household came down with the disease 15 days after exposure, and in a second instance six days after exposure. These were the only persons who gave a history of contact with a preexisting case. A report of this series of cases was also given by Conklin[10] at the annual session of the American Medical Association in Cleveland in 1934. After the virus was isolated from brains of fatal cases in the St. Louis outbreak of 1933, it was shown by Webster and Fite,[11] and by Wooley and Armstrong[12] that blood from most of the survivors of the Paris outbreak of 1932 contained specific protective properties against the St. Louis virus. This is evidence that the outbreak at Paris in 1932 and at St. Louis in 1933 were caused by the same infecting agent. A check of the Paris survivors in the spring of 1933 revealed that many of them suffered from emotional instability, headache and inability to concentrate at

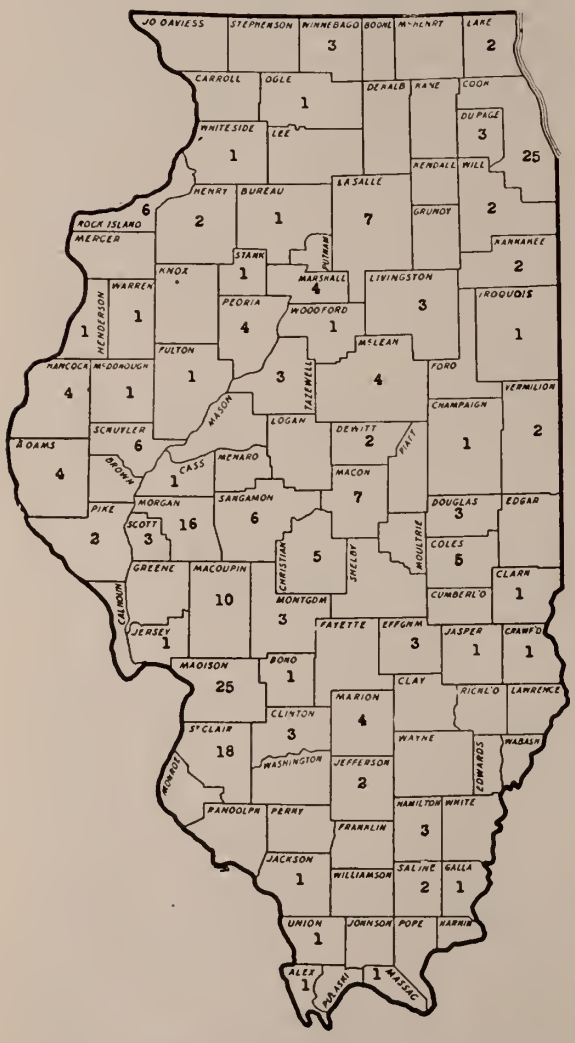


Fig. 1. Reports of encephalitis (all types) by counties, 1933



Fig. 1. Reports of encephalitis (all types) by counties, 1934

intervals for a period of three to six months following the illness. Myoclonia was not found in any of these persons. Additional checks in the summer of 1934 and in May, 1935, revealed that none of the survivors complained of conditions which could be regarded as sequelae of their 1932 illness.

When the outbreak of encephalitis in St. Louis and Kansas City was reported in the summer of 1933, officials of the Illinois Department of Public Health were very much interested, fearing the possibility of spread to this state. The health officers from the Illinois cities across the Mississippi River from St. Louis were invited to become members of the Metropolitan Health Council of St. Louis. The fears were well founded, for within a short time, cases of this disease were reported from Morgan County in the central part of the state and from Madison and St. Clair Counties, which are across the river from St. Louis. The number of reports throughout the state increased rapidly, with Madison and St. Clair Counties reporting the largest numbers, although smaller numbers were reported over a wide area throughout the state. The peak was reached in September, when 95 cases were reported. Coincident with the St. Louis outbreak, 177 cases were reported in this state during August, September and October, 1933. Most of the cases were reported from small cities and rural districts. It is noteworthy that Chicago reported very few cases at that time. The greater incidence of the disease in the lesser populated districts in St. Louis County as compared to St. Louis City has been emphasized by Leake, Musson and Chope.[5]

The summer of 1934, like those of 1932 and 1933, was extremely hot and dry. Although no outbreak of encephalitis was reported from the St. Louis area during the summer of 1934, several counties in Illinois reported extensive outbreaks. (See figure 1). Some of these counties are near St. Louis, while others are widely separated from that portion of the state. The seasonal incidence was about the same as that of 1933, but the peak was higher in September, with fewer cases reported in October. At the same time, an extensive outbreak was reported in the daily press from the area in and around Evansville, Indiana.

Encephalitis has been reportable in this state since 1920. Table 1 shows the number of cases of all types of encephalitis reported by months for the past ten years, and the unusual prevalence of the disease during the late summer and early autumn months in recent years is noteworthy. The sudden rise in August, 1932, has persisted during the years 1933 and 1934. Figure 2 records the number of cases by dates of onset during the months of August, September and October in 1933 and 1934, when encephalitis was most prevalent. All types of encephalitis are grouped under one heading in figure 1 and table 1, following the suggested classification of encephalitis given by the United States Public Health Service.[13] This classification follows:

1. Infectious encephalitis:
   1. Type A, or Economo or lethargic type, chiefly sporadic.
   2. Type B, chiefly epidemic
      (a) Japanese form.
      (b) St. Louis form.
   3. Other types, possibly the Australian.
2. Post or para-infectious encephalitis, chiefly seen following measles, smallpox, vaccinia, or chickenpox.

Abstracts of the clinical records have been made of 463 cases of encephalitis reported in Illinois during the season of greatest incidence in the past three years. The cases which occurred in Paris during 1932 are included in this group. These records have been analyzed, and the results are presented in table 2 and figure 2.

TABLE 1
CASES OF ENCEPHALITIS (ALL TYPES) in ILLINOIS
REPORTED BY MONTHS 1925-1934

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1925	15	13	12	10	5	6	7	8	10	5	6	15	112
1926	8	8	5	9	8	11	7	10	17	12	6	8	109
1927	9	11	8	16	14	7	9	9	7	3	9	10	112
1928	3	6	11	7	9	11	11	3	8	4	7	11	91
1929	8	7	14	6	15	1	5	12	3	2	5	2	80
1930	6	7	6	13	6	5	5	2	4	15	2	6	77
1931	4	6	5	5	5	5	7	0	13	5	1	7	63
1932	1	11	10	6	4	7	3	28	16	6	8	11	111
1933	6	2	5	8	2	5	4	24	95	58	12	9	230
1934	7	5	6	3	3	5	7	89	112	33	13	14	297

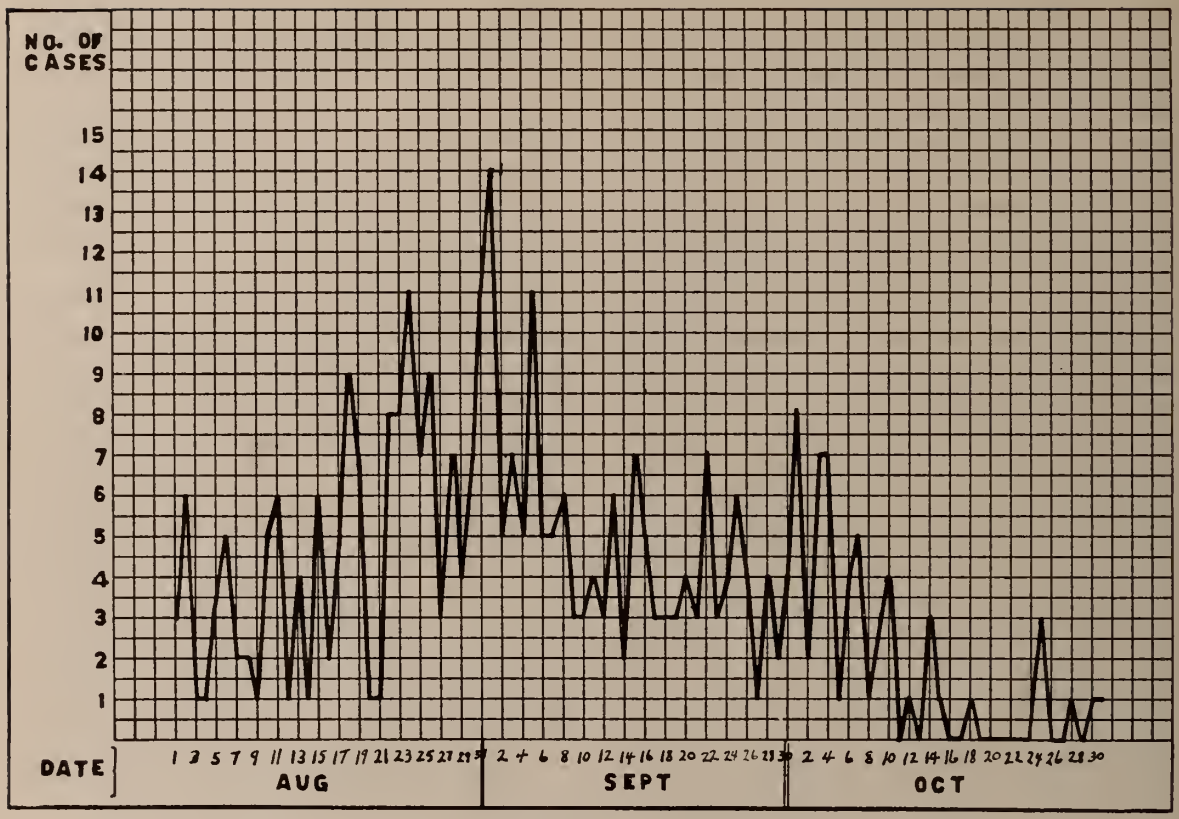


Fig. 2. Encephalitis (St. Louis Type) in Illinois. Dates of onset 1933 and 1934

Although most of the victims in the Paris outbreak of 1932 were over 40 years of age, such has not been our experience in 1933 and 1934. Table 2 shows that the number of patients is about equal in all of the age groups. On the whole, females were somewhat more susceptible to the disease than were males. Only two per cent. of the victims were Negroes.

Figure 3 illustrates the frequency of the symptoms and physical findings which were most prevalent. In addition to those recorded in this chart, several complaints and physical findings were noted in numbers too small to be tabulated. A small number of persons had severe generalized convulsions as their first indication of illness. Others complained of severe chills. The absence of diplopia in this type of encephalitis is outstanding. The writer has seen a number of patients who complained bitterly of photophobia and blurring of vision, but only in a small number of instances was paralysis of the eye muscles found. A small number had marked tremors of the facial musculature and of the tongue. Examination of the throat revealed no evidence of inflammation in the majority of instances. During physical examination most of the patients could be aroused to answer questions, following which they generally lapsed back into a stuporous state. A small number were extremely delirious and had to be restrained. Many of those seen early had exaggerated deep reflexes, which were gradually lost as the illness progressed. The writer's impression is that too much emphasis is placed on the absence of abdominal reflexes, for in certain normal persons no abdominal reflexes can be elicited at any time. This sign should be checked several times during the course of the illness, and if these

TABLE 2
ENCEPHALITIS (ST. LOUIS TYPE)
In ILLINOIS
AGE DISTRIBUTION BY SEX AND COLOR

Age Groups	All Cases	White and Colored		White		Colored	
		Male	Female	Male	Female	Male	Female
	463	217	246	212	242	5	4
0- 9.....	41	28	13	27	13	1	..
10-19.....	53	28	25	28	25	..	..
20-29.....	65	29	36	26	36	3	..
30-39.....	62	30	32	30	30	..	2
40-49.....	50	14	36	14	35	..	1
50-59.....	63	26	37	26	37	..	..
60-69.....	61	23	38	22	37	1	1
70-79.....	56	31	25	31	25	..	..
80 and over	12	8	4	8	4	..	..

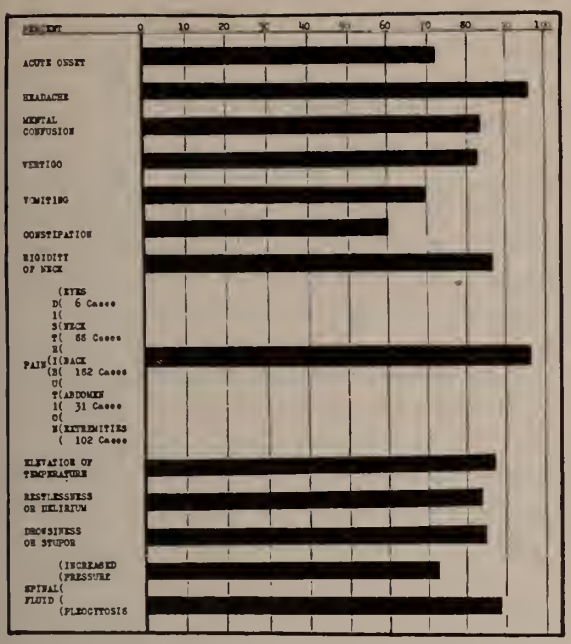


Fig. 3 Encephalitis (St. Louis Type) in Illinois. Frequency of positive symptoms and physical findings in 463 cases.

reflexes have disappeared as a result of encephalitis, they will gradually return as the patient improves. Kernig and Babinski signs were variable from day to day, and little reliance can be placed upon them.

Most physicians who have seen cases of epidemic encephalitis during the past few summers have been fairly well convinced that this is a new clinical entity. As a rule, no physical signs of a localized lesion are obtainable; on the contrary all signs point to an acute inflammatory process of the brain. Some of the victims remember nothing for a week or ten days. On the average the temperature returned to normal between the fourth and seventh days, although in several instances it persisted for 12 to 14 days. In some instances the actual degree of temperature was not recorded, but in our experience the temperature ranged between 101° and 104° F. in the majority of cases.

In the cases which had a fatal termination, death occurred on the average five days after the date of onset. As was the case in St. Louis, a higher percentage of fatalities occurred in the upper age groups. In the Paris outbreak of 1932 the fatality rate was 37 per cent. as compared with a state rate of 40 per cent. in 1933 and 22 per cent. in 1934, during the months of August, September and October. The fatality rate in Illinois in 1934 was approximately the same as the fatality rate in St. Louis in 1933. Table 3 records the deaths from encephalitis by months for the past three years. Most of the deaths took place in the state exclusive of Chicago, the greater number occurring during the months of August, September and October.

SUMMARY

1. An outbreak of 38 cases of encephalitis occurred in Paris, Edgar County, Illinois, during the summer of 1932, in which the fatality rate was 37 per cent. Tests for protective properties in the blood of the survivors, carried out by investigators in the National Institute of Health and in the Rockefeller Institute for Medical Research, revealed that the disease was identical to the type of encephalitis which occurred in St. Louis in 1933.

2. No cases of encephalitis occurred in Edgar County during 1933, but 15 cases were reported during August and September, 1934. In this instance it appears that the disease manifests itself in a two-year cycle, and the possibility of an outbreak in the St. Louis area during 1935 should be kept in mind.

3. An outbreak of encephalitis, in which the fatality rate was 40 per cent., occurred in Illinois in 1933 coincident with the outbreak in St.

TABLE 3

DEATHS FROM LETHARGIC ENCEPHALITIS
(INT. LIST No. 17) IN ILLINOIS
REPORTED BY MONTHS 1932-1934

Year	Area	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1932	The State	6	2	5	4	1	3	6	12	8	5	1	2	55
	State exclusive of Chicago	6	2	5	1	1	3	5	9	6	3	1	1	43
	Chicago	..	..	..	3	..	..	1	3	2	2	..	1	12
1933	The State	4	2	6	4	2	6	3	13	28	21	4	9	102
	State exclusive of Chicago	2	2	3	3	2	5	3	11	27	20	3	8	89
	Chicago	2	..	3	1	..	1	..	2	1	1	1	1	13
1934	The State	2	4	1	8	1	2	1	26	18	7	6	5	81
	State exclusive of Chicago	2	4	..	5	1	2	1	24	17	5	5	5	71
	Chicago	..	..	1	3	..	..	..	2	1	2	1	..	10

Louis. Most of the cases were reported from counties near St. Louis.

4. An outbreak of 234 cases of encephalitis, in which the fatality rate was 22 per cent., occurred in the late summer and early autumn of 1934. The largest number of cases were reported from Fulton, Peoria and Vermilion counties.

5. The most common symptoms of encephalitis are: 1. severe occipital headache; 2. stiff and painful neck; 3. drowsiness, and 4. fever. Mental confusion, delirium and vomiting occur less frequently. In most cases, lumbar puncture reveals the spinal fluid to be under increased pressure, and from 30 to 300 lymphocytes per cubic mm. are found.

6. Large cities in Illinois have not had as many cases of encephalitis of the St. Louis type as have the less populated districts. This disease appears to have a predilection for persons residing in small cities and villages. Adults are affected much more frequently than are children. No specific form of therapy for this type of encephalitis has been developed. Symptomatic and general supportive treatment are advised.

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CARCINOMA AND THE GENERAL PRACTITIONER

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Despite the extensive "cancer campaigns" put on by our leading medical organizations and despite the great strides science has made in the study of cancer, we still face the startling fact that the number of inoperable and hopeless cancers is appallingly large. It is generally agreed[1] that destruction or eradication of early malignant lesions prevents the development of late incurable lesions; the practitioner therefore who first sees most cancers can do much to cut down the incidence of inoperable cases.

The general practitioner usually accepts cancer at its face value of malignancy and other than knowing that cancer deals with a proliferation of abnormal cells which metastasize, he concerns himself very little with the possible embryological development of the cancer cell. I don't believe the practitioner needs to be a morphologist. Vast knowledge of the microscopical picture of the individual cell isn't necessary for the part he plays in suspecting or recognizing early cancer. A working knowledge of the modern conception of cancer development will however tend to make him more "cancer conscious."

The modern conception is that cancer is an uncontrolled repetition, both in order and sequence, of the physiological cell replacement normally occurring in the particular area from which the tumor arises. In infection we see an infiltration of cells which are foreign to the particular seat of involvement, but are adapted to a particular use. In dysfunction we see a proliferation of mature cells, normally found in the particular area involved, attempting to supply a body demand, as seen in goiter. In benign neoplasm we see a proliferation of mature cells which are repeating in order and sequence the normal histogenesis of the cells found in that particular part of the body. In a malignant neoplasm we see cell repetition in the same sequence, but it is in greater abundance, it is uncontrolled and it consists not only of mature cells, but of every cell stage from the very early embryonic to the mature cell normally found in that particular part of the body. The degree of malignancy therefore depends not so much upon

the organ affected, as upon the particular tissue within that organ from which the tumor arises.

The problem of morphological development and how it is to be interpreted is dependent upon the pathologist. But placing that problem in the hands of the pathologist is dependent upon the general practitioner; to do this he must be made early "cancer conscious." Broders[2] states that the entity called carcinoma is a primary disease of the epithelial cells and all other phases of the disease are secondary in nature. As a clinical entity then we can assume a carcinoma to be a carcinoma irrespective of its size. But the problem arises, "At what point is a cancer not a cancer?" It is a fact of common experience that cancer develops in previously normal sites as well as in previous lesions of long standing. To the practitioner then every suspected lesion should be considered cancer until proven otherwise. Yet what untold numbers of early cancers are allowed to go on without suspicion until it is too late? McCarty[3] reports that between 30% and 50% of cancers of breast, 42% of cancers of the large bowel, and 75% of gastric cancers are inoperable and hopeless when first seen at the Mayo Clinic; that not over 25% of the gastrointestinal cancers had been previously examined by x-ray; that 20% of the patients with rectal and sigmoid cancers had been treated previously for hemorrhoids or anal fissures within a few weeks of their admission to the clinic. Bargen and Leddy[4] after analyzing two hundred cases conclude that the poor prognosis of carcinoma of the rectum is often due to delay of the physician in making a digital examination. These are indeed serious indictments of the general practitioner. He cannot be "cancer conscious" if he allows such statistics to accumulate. Even if all the border line breast tumors described by Bloodgood[5] were proved malignant we ought not have such huge numbers of inoperable breast cancers. The average size of the nodule in breast cancer is about one and one-half inches in diameter. Certainly a nodule of this size is perceptible and even palpable long before it has attained the measurement of one one and one-half inches in diameter. It is true that no one has ever seen the beginning of a carcinoma of the breast. Jaffe[6] reports that many men have made a careful examination of a breast and found nothing but three months later the patient returned with a breast tumor the size of a half dollar. The number of such cases must however be very small. It can at best be only a fraction of the large number of cases, even operable ones, which come to operation much too late. We must admit that the great factor in breast cancer is metastasis; one often sees extensive metastases from a very small primary focus. Yet the early diagnosis is of extreme importance and the smaller the tumor the better is the chance for complete removal. The general practitioner sees the case first and only upon his recommendation can the tissue diagnosis be made by the pathologist. The early diagnosis of carcinoma in hope of a possible cure therefore rests with the family physician. All too often he fails to have the breast nodule removed early; all too often the breast nodule is removed and sent away for diagnosis instead of being immediately sectioned; only when a report of malignancy is later received, much too long after the cancer field has been disturbed, is the whole breast removed. Of 75 breast cancers sectioned in this laboratory only 21 were subjected to immediate biopsy and the breast completely removed when reported malignant; in 31 cases the nodules alone were sent in and probably several days or weeks intervened before the breast was completely removed; in 23 cases the breast was completely removed without biopsy on the basis of a clinical diagnosis of malignancy. Not counted in this group were 14 non-malignant nodular breasts, some of which were most likely not suspected of malignancy, and were removed as a prophylactic measure. To remove a malignant nodule alone and wait days or weeks before removing the breast is unnecessarily disturbing a cancer field which tends to rapid metastases. To remove a breast only on a clinical diagnosis of malignancy means that many breasts are sacrificed because of the presence of benign nodules; further, if we allow all breast nodules to continue until the correct diagnosis of malignancy can be made clinically we are neglecting early breast cancers. Of these 75 cases of breast cancer, 21, or less than one-third, were given the benefit of all that the good practice of medicine has to offer; that is, the nodule was removed, immediately examined and with a report of malignancy, radical surgery was instituted at the same operation. The remaining 54 cases were either subjected to a second operation too long after the field was disturbed or were subjected

to radical breast amputation without a tissue diagnosis. Such practices tend to raise the incidence of inoperable breast cancers. The "cancer campaigns" by leading medical organizations do much to publicize the "come early" slogan in consequence of which more women with breast nodules seek earlier medical attention. But, from the statistics we have, it doesn't seem that the medical profession is making equally notable progress is properly diagnosing these nodules early.

In cancer of the gastrointestinal tract there may be some justification for a higher figure of inoperable cases than in the breast; the latter is much more accessible. But even in the gastrointestinal tract, statistics indicate that the general practitioner is allowing many early cancers to go undiagnosed. Of 39 specimens of malignant tissue from the gastrointestinal tract examined in this laboratory, 27 were advanced carcinoma with metastases to other organs and only twelve were considered operable at the time of operation. The mortality rate must, under such circumstances, be exceedingly high; 70% were so far advanced that either a biopsy alone or a biopsy and palliative surgery, such as gastroenterostomy, were done. Surely the practitioner, despite all the cumbersome and voluminous literature on carcinoma of the stomach and intestine is treating many early gastrointestinal cancers for everything but cancer if 70% are recognized only when they become inoperable. Similarly the large number of patients with rectal and sigmoid cancers who previously had been treated for hemorrhoids, etc., clearly indicates that early cancers of the rectum are not being recognized; probably not recognized because many rectal complaints are not thoroughly investigated.

There are probably many other types of cancer which are not recognized because the physician has not familiarized himself with the prevalence of malignancy in that particular organ. Only recently I was greatly surprised when a well-known and reputable internist shook his head in great doubt when I suggested primary carcinoma of the lung to him. He questioned the existence of primary cancer of the lung and felt it was a rare condition in any instance. In some hospitals carcinoma of the lung is reported to be as common and as frequent as carcinoma of the stomach. Yet this well-known internist not only didn't think of the possibility of a primary cancer of the lung but even doubted its existence. I don't mean that in this particular case an earlier diagnosis would have made much difference; it is exceedingly difficult to diagnose primary lung malignancy and probably only about 50% are properly diagnosed. But it illustrates how, in many instances, the practitioner is not sufficiently "cancer conscious." Unless he becomes more "cancer conscious" and more suspicious of cancer than he has been many early malignancies will continue to escape him.

The question then arises, "how can the practitioner or the medical profession recognize more cancers in their early stages?" Educate the public? Yes—that is being done. In addition however we must educate the general practitioner that early cancer can never be recognized if we wait for the classical text-book picture. Early cancers do not produce the signs and symptoms that are characteristic of the disease. Unless the physician and surgeon recognizes the frequent occurrence of cancer in chronic inflammatory conditions he will miss many early cancers. Every breast nodule, every hemorrhoid and gastrointestinal complaint should be treated as a potential cancer. All accessible potential cancers should be subjected to biopsy with facilities to do a complete and radical resection at the same operation. All chronic gastrointestinal disturbances should be subjected to competent and careful x-ray study; the doubtful cases should be explored surgically with facilities for immediate pathological diagnosis.

The general practitioner must realize that these factors are essential ones in the effort to recognize and properly treat early cancers. Only by such measures, which make the practitioner more "cancer conscious" can the general profession hope to decrease the incidence of inoperable and hopeless cancers.

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VITAMIN G DEFICIENCY

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Goldberger and Lillie[1] were the first investigators to describe the pathological condition in the rat due to a deficiency of what is now termed vitamin G (B_2). They observed the following symptoms as characteristic of a deficiency of the newly discovered vitamin, then only recently differentiated from vitamin B: arrest of growth, sticking together of the eyelids with an accumulation of dried secretion on the lid margins, and loss of hair from various parts of the body which sometimes resulted in nearly complete denudation. Some of the animals later developed a dermatitis on one or more of the following sites: ears, neck, chest, legs, or paws. Some animals showed a linear fissuring or ulceration of the angles of the mouth and a lesion on the tip of the tongue.

Other laboratories [2, 3, 4, 5, 6] soon confirmed the general findings reported by Goldberger and Lillie.

Several years ago, we observed that, in addition to the symptoms previously reported, young rats given a vitamin G deficient diet developed a whitish appearance of the eyeball in a large percentage of cases. Examination with the opthalmoscope revealed the presence of keratitis (opacities in the cornea) and cataract, and histological sections of such eyes confirmed the diagnosis.[7] Using our dietary regimen, two other laboratories [8, 9] have obtained similar results. In order to determine whether this new deficiency manifestation was peculiar to the rat or general for all species, we extended our experiments to mice[10] and chicks[11] and have found cataract resulting from vitamin withdrawal. We are now obtaining similar results with monkeys.

Cataract is any opacity of the lens of the eye or of the lens capsule. In order to make subsequent discussion clear I give briefly the anatomy and pathology of the lens. It is a biconvex transparent body, the function of which is to focus the image of objects upon the retina. The capsule is a homogeneous transparent membrane which covers the entire surface. The lens proper is built up of long, transparent, ribbon-like or prismatic bodies known as lens fibers. Each lens fiber is disposed along a meridian of the lens, and extends from its anterior to its posterior hemisphere. In addition, the lens contains a layer of cells over its anterior surface and just under the capsule—the lens epithelium. These are the only cells capable of regeneration. Their function is to lay down successive layers of lens fibers during growth. Mechanical injury, certain diseases, and some toxic materials cause opacities. The lens is non-vascular, and obtains nutriment by diffusion from the aqueous humor, which lies anteriorly, and is in direct contact with the lens capsule.

Aside from inflammatory changes that may occur only when the capsule is broken, the pathological changes possible within the lens are extremely limited. Friedenwald[12] classifies these as follows:

1. Sclerosis of the lens fibers, which in extreme cases causes impairment of vision.
2. Autolysis of lens fibers, characterized at first by shrinkage of the fibers with the formation of fluid filled clefts, and later by swelling and digestion of fibers, with the formation of amorphous or crystalline precipitates, which, together with fragments of unaltered lens fibers suspended in a fluid of high protein content transmit light very poorly.
3. Prolifieration of the anterior lens epithelium, which sometimes forms a dense membrane many cells deep.

The cataracts we have found resulting from vitamin G withdrawal have been characterized in histological section by the two latter changes, that is, autolysis of lens fibers, and proliferation of the lens epithelium (Figure I).

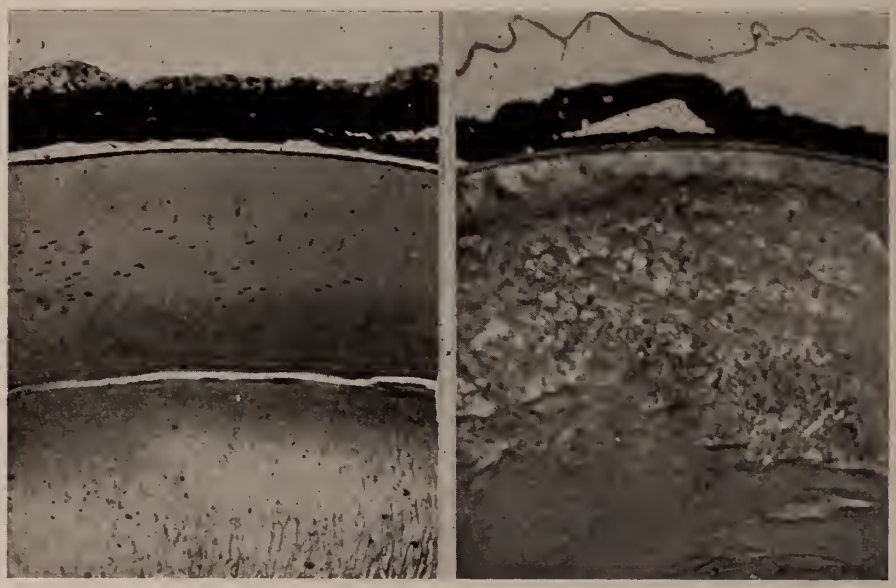
These nutritional cataracts have been prevented by yeast, autoclaved yeast, liver, kidney, and other meats, milk powder, and a wide variety of other foods containing vitamin G. In fact, wherever definite growth has been obtained in a vitamin G assay, cataract has failed to appear. Wherever rats have failed to grow in a vitamin assay, as in negative controls or in animals which received foods deficient in vitamin G, cataract has developed. It appears, therefore, that for our strain of rats, stock diet, method of care, and deficient diet, the growth promoting

Reprinted from American Journal of Public Health, Vol. 24, No. 6, June, 1934. Published by the American Public Health Association, 50 West 50th Street, New York, N. Y.

*Read before the Food and Nutrition Section of the American Public Health Association at the Sixty-second Annual Meeting in Indianapolis, Ind., October 9, 1933.

vitamin that we are dealing with is the same as the cataract preventive vitamin.

The feeding of a vitamin rich diet to animals which have developed the disease results in a gradual clearing up of all the general and ocular manifestations except the cataract. The opacities in the cornea tend gradually to disappear. New hair appears on the eyelids, the animal in general puts on a new coat of hair, and develops an apparently normal health and vigor. The lens opacities do not disappear, however, as there is no mechanism for the repair of damaged lens fibers (Figure III).



A B

Fig. I. Microphotographs of sections of normal and cataractous lenses of Norway rats. A—Normal lens; B—Cataract resulting from vitamin G deficiency.

Numerous investigators have observed an ophthalmia as one of the characteristic signs of vitamin G deficiency in the rat.[1, 2, 3, 4, 5, 6] Of all these investigators, Salmon, Hays, and Guerrant[3] alone mentioned an opacity of the eyeball. They believed, however, that the opacity centered in the vitreous humor but sometimes invaded the lens.

The question arises: why, if cataract is such a constant accompaniment of vitamin G deficiency, has it not been observed more generally? There are probably several reasons. Even under the most favorable conditions for the appearance of lens changes, *gross* cataract frequently does not appear until after the 70th day. Consequently, if the animals were kept for an 8 or 10 week period only, the cataract might easily be overlooked. Before the gross manifestations of cataract appear, there is frequently a sticky exudate which seals the lids, and only by forcing them open does the cataract appear, so it might easily go unnoticed unless one were looking especially for it. It is also quite possible that in other laboratories, because of different nutritional history, different vitamin deficient diets, and with other methods of care, rats do not develop cataract on G-deficient diet.

As we have been using cataract as a criterion of vitamin G deficiency in our negative controls, we have naturally chosen those conditions of diet, age and size of animals, size of litters, etc., which would produce cataract with the most regularity and at the earliest age. Therefore it is not surprising that we have found and reported cataract in a higher percentage of cases than have other laboratories. It is possible that with our experimental regimen we are dealing with one deficiency, and laboratories that have not observed cataract are dealing with a deficiency of some other vitamin.

Are these experimental cataracts due to lack of vitamin G, or some other vitamin? This may depend upon the definition of vitamin G accepted. The cataract preventive vitamin is stable to autoclaving, is soluble in water and dilute alcohol, and insoluble in strong alcohol. The cataract results from a deficiency of vita-

min G then, if vitamin G is defined as the relatively heat-stable water-and dilute alcohol-soluble vitamin or vitamins. To those who limit the use of "G" to denote the dermatitis preventive factor, cataract may or may not be due to vitamin G deficiency. Superficially considered, it might seem improbable that the dermatitis preventive factor and cataract preventive factor could be identical. On more careful consideration, however, it seems not only possible but quite probable. The lens is derived embryologically as an invagination of the bodywall ectoderm, and thus is derived from the same germ layer as the skin. Friedenwald says: "The structures most nearly related to it are the hair and the nails."[12] It is therefore not unreasonable to suppose that a deficiency which results in changes in the skin might also produce pathological changes in the lens. It seems that vitamin G deficiency affects chiefly tissues of ectodermal (body-wall) origin: skin, lining of the mouth, conjunctiva, cornea, and lens.



Courtesy of the *Southern Medical Journal*

Fig. 2. Photograph of a Norway rat showing cataract resulting from vitamin G deficiency.

Although it appears quite probable that both dermatitis and cataract are due to the same deficiency, there is the possibility that cataract and the other ocular changes result from a deprivation of one of the newer and less well known vitamins, of which there appear to be several. Harris,[13] in 1931, listed 17 new factors of the vitamin B group reported up to that time, and several similar reports have appeared since.

It would appear that, in working with the multiplicity of factors in the vitamin B complex, investigators have given more attention to evidence based upon growth than to that based upon pathological manifestations. Growth can be accurately measured, averaged, and the results statistically analyzed, while it is difficult to give a quantitative statement of the degree of pathological change, such as the extent of dermatitis. For this and other reasons, much of the evidence for the existence of the many new vitamins is based upon growth alone. Chick and Copping[14] recognized this in 1930:

> Much difficulty and uncertainty in this field of work is due to the fact that, except in work on the antineuritic vitamin B_1 and to some extent in that on the antidermatitis vitamin B_2, the criterion for presence or absence of these various B vitamins has been the growth (increase in weight) of a rat or pigeon. . . . . Advance in this field of work would be much helped if the physiological rôle of the various members of the group were elucidated and the pathological condition following deprivation recognized.

For this reason alone I feel that the cataract which results from a deficiency of a relatively heat-stable vitamin deserves the attention of workers in this field. If cataract results from a deficiency of one of the new vitamins, it is a definite and unmistakable sign to be looked for as evidence of such deficiency. If cataract and keratitis result from the same deficiency as dermatitis, we have another and perhaps better criterion of the deficiency. In fact, dermatitis would seem to be an unsatisfactory evidence of vitamin G deficiency, since Sherman and Sandels[5] found that it occurred more frequently when there was a small amount of vitamin G present in the diet.

In a large series of animals which we have recently followed by weekly opthalmoscopic examinations,[11] keratitis and cataract were the *first* pathological signs observed, excepting alopecia. In some cases cataract preceded the loss of hair. It is quite probable that there were changes in the skin coincident with the changes in the cornea and lens, but due to the structure of the skin, pathological manifestations are not readily evident until far advanced. On the other hand, the lens is a transparent tissue in which very early changes can be seen with the ophthalmoscope without injury to the animal, and with which the daily or weekly progress of the disease can be followed closely.

In order to make pathological records of skin changes comparable to those we keep on rats' eyes, it would be necessary to kill representative

animals at weekly intervals, fix and section portions of the skin, and examine with a microscope. In proposing the ophthalmoscope as a new tool for the vitamin biochemist we are suggesting a technic that is simple and rapid.

Good ophthalmoscopes, entirely satisfactory for animal work, are obtainable at less than half the price of an ordinary microscope. A few weeks' experience will enable the research worker to distinguish the various stages in the pathology of the cornea and lens of experimental rats on vitamin G deficient diet.



Courtesy of the *American Journal of Ophthalmology*

Fig. 3. Photograph of an albino rat showing cataract in the left eye as a result of vitamin G deficiency. In this case cataract developed in the left eye first, after which time vitamin G was added to the diet, preventing the development of cataract in the right eye.

What is the application of these experimental findings to human cataract? We are becoming increasingly confident that cataract may be expected wherever there is an inadequate intake of vitamin G. All animals with which we have experimented, from chicks to monkeys, have developed cataract as a result of such a deficiency. If man does not, he would appear to be the exception. As the human requirement for vitamin G is not known, it is impossible to state whether any given human dietaries are deficient enough in this factor to produce cataract.

Clinical cataract results from a number of causes. Two types—congenital and so-called senile—are of obscure etiology. It would seem possible that at least some of these so-called senile cataracts might be the result of vitamin G deprivation. The general appearance of the rat given a subnormal amount of vitamin G, Sherman[15] describes as a picture of "premature senility." He says: ". . . so a liberal intake of vitamin G contributes to a better than average nutritional condition and thus to what McCollum and Simmonds have aptly termed 'the preservation of the characteristics of youth.'" Sherman and Smith[16] state: "The significant improvement in longevity found by Sherman and Campbell resulting from improving a diet already adequate . . . is probably due in part to the higher content of vitamin G. . . ." With such observations upon the picture of premature old age resulting from vitamin G deficiency, and the preservation of youth and increased length of life resulting from a liberal intake of vitamin G, it is possible to make out a plausible case for a possible relationship between vitamin G deficiency and senile cataract. Friedenwald says: "(senile) cataracts may, then, be related to the falling out and blanching of the hairs and to other similar senile changes in epidermal organs."[12] In the light of this statement it seems more than a coincidence that, in our experimental animals, we find a falling of hair and early cataractous changes occurring almost simultaneously.

A discussion of cataract and vitamin G deficiency would not be complete without mentioning pellagra. Cataract does not appear to be any more prevalent among pellagrins than among nonpellagrins of the same age, occupation, and social class. If experimental cataract is the result of a deficiency of the dermatitis preventive vitamin *per se,* this would argue against the identity of the pellagra preventive

and the rat dermatitis preventive factors. It is possible, of course, that pellagra and cataract both result from the same deficiency under slightly different conditions. It may be that pellagra results from a partial deficiency, while cataract results from a more complete deprivation of the same vitamin. A somewhat analogous condition is met with in our experimental animals; diets free enough of vitamin G to produce cataract do not cause the ulcerative type of dermatitis. Under these conditions alopecia is about the only consistent evidence of dermatitis. With less complete freedom from vitamin G, distinct scabby ulcers appear on the skin, but the development of cataract is greatly delayed (Cf. Sherman and Sandels[5]).

In discussing the bearing of the cataract of vitamin G deficiency upon the etiology of pellagra, it is premature to do more than suggest possibilities. Although cataract as a symptom of G-avitaminosis seems to add one more unanswered question to the pellagra problem, it is hoped that it will ultimately aid in the elucidation of this important question.

Although vitamin G withdrawal does not result in such rapid and dramatic changes as some other deficiencies, such as in the case of vitamin A, a deficiency that results in such marked and *irreparable* damage to such a highly specialized tissue as the lens, should not be considered lightly.

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SPONTANEOUS RUPTURE OF THE UTERUS WITH REPORT OF A CASE

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Rupture of the uterus is a rare but dramatic complication of pregnancy, that demands of the physician in charge alertness, good judgment and prompt action.

Ruptures of the uterus may be traumatic, before or during labor; spontaneous, before or during labor; or may be classified under the pathological conditions found at the time of operation or autopsy. The pathological classification will cover most of the cases in a more reasonable manner. Hence, we will consider the etiology from that standpoint.

Spontaneous rupture may occur at any time during pregnancy. It is more common in the later months but in the 78 cases collected by Baisch,[1] 31 of them occurred in the first five months of pregnancy.

One may readily understand how severe external trauma, as blows, crushing injuries and the like, might rupture the pregnant uterus, in the same manner as any other abdominal viscus. Also that gunshot wounds, knife wounds, goring by a bull, and other similar accidents might befall a pregnant woman.

The trauma and infection associated with criminal abortion,[2] are frequent causes of rupture of the uterus at that or a succeeding pregnancy.

Attempts at instrumental delivery or version, after a long, difficult labor, are sources of this accident. The thinned out lower uterine segment is easily torn by too much or misapplied

force used in an attempt to make delivery. Unwise or too hasty attempts at delivery, before the cervix is dilated, or manipulation in a uterus that is not relaxed, will also cause rupture of that organ.

Any drug, which causes strong uterine contractions such as pituitrin,[3] ergot, thymophysin, or quinine, may cause rupture of the uterus. This is especially so if there is some obstruction to the descent of the fetus.

The lower uterine segment, or passive portion of the uterus, is gradually thinned out during labor. In a prolonged labor this process increases, and becomes excessive, especially so if the anterior lip of the cervix is caught between the presenting part and the symphysis pubis. Thus in difficult, prolonged labors, an accentuation of this normal process may lead to spontaneous laceration of this portion of the uterus. The appearance of Braune's contraction ring, the junction between the active thick muscular portion and the passive thin portion of the uterus is one of the signs of impending rupture of that organ.

Pathological changes in the uterus may cause rupture of that organ either before or during labor. Trauma, usually of a mild degree, is frequently the exciting cause. Multipara are more often affected than primipara as pathological changes are more frequent.

The most frequent pathological change associated with rupture of the uterus in recent years is the cesarean section scar. In going through the literature the majority of ruptures of the uterus are those following a previous cesarean section. There are more ruptures reported following the classical operation than following the low cervical cesarean. Bloom and Greenhill[4] reported a series of 37 low sections in which, at the second operation, no gross scars could be seen in 21. Microscopically six of these had practically normal uterine walls. There were varying degrees of scarring in the remainder. Holland[5] states that anatomical studies from reoperation and autopsy, show that in the classical section the thick uterine muscle frequently pulls away, leaving a bridge of endometrium and peritoneum separating the uterine and abdominal cavities.

The lower portion of the uterus has less stress on it before labor, and being less active, probably heals much better after labor. Also, in view of the fact that the placental site is usually well above a low cervical section scar, it would seem that where possible the low section should be done, with the hope that in succeeding pregnancies rupture of the old scar would be less apt to occur.

Infections following intrauterine manipulation, or manual removal of the placenta, in which uterine muscle has been torn away with the adherent placenta,[6] are sources of scar tissue. Partial ruptures at previous labors, from instrumentation or manipulation in an imperfectly relaxed uterus, will produce a scar that may rupture at a succeeding pregnancy. Scars from myomectomy or salpingectomy with removal of the interstitial portion of the tube[3] may subsequently cause rupture of the uterus.

Tumors, as myomata and carcinoma, are causes of rupture which are relatively infrequent as pregnancy in these conditions is not common.

Infections following intrauterine manipulation may leave the round cell infiltration and hyaline degeneration of the myometrium which is frequently found in ruptured uteri.

The decidua basalis has for its function the protection of the maternal tissues from the invasion of the fetal structures. A deficiency of endometrial response to the invading trophoblast, and later the chorionic villi, causing placenta increta, is often found in ruptured uteri. Many of the cases reported in the literature, I believe, might well be listed under this cause, as the gross descriptions are rather typical of it. The cases reported are all in multipara.[7] There is frequently a history of curettage or manual removal of an adherent placenta. I can see no reason why any uterine scar, cesarean or otherwise, involving the entire thickness of the endometrium, might not be a precursor of this condition. If the placenta is implanted near or over an old scar, surely the response of the endometrium in that area may well not be normal.

Ablatio placentae is relatively rare as a cause of uterine rupture. Phaneuf[8] reported two cases, one of which was in labor at the time the rupture occurred.

Hydramnios was present in Clelland's case[9]; microscopic examination revealed a normal uterine wall.

Abnormalities in the development of the uterus, as bicornate uterus, uterus arcuatus, and infantile uterus are considered by Baisch[1] to be

very important factors in rupture of the uterus.

Syphilis has seldom been noted although Jacobs[3] reported a case that had a four plus Kahn. Riddel's[10] patient had been treated for syphilis and had a negative Wassermann at the time of the rupture. These findings are probably incidental as no luetic lesions were found in either case.

The site of rupture varies with the cause. Ruptures due to trauma may be found any place in the uterus. Ruptures during labor are nearly always in the lower uterine segment. Those occurring before labor are usually at, or near the fundus. They may involve either the anterior or posterior wall. The lacerations are usually linear, but may be irregular. McPhearson[11] reported one that was triangular. They are small at first, becoming larger if the uterus contracts, until they may involve a large portion of the uterus. The fetus is then expelled into the abdominal cavity and contractions cease.

Round cell infiltration and hyaline degeneration are the most frequent pathological findings, although several have reported cases in which the uterine wall appeared normal on microscopic examination.[1-9-11-12]

In deficiencies of endometrial response, the placenta is usually firmly attached to the uterine wall and invading the myometrium. The uterine wall in this area is thin. Many speak of paper thinness. Viewed under the microscope, the columns of trophoblasts and frequently chorionic villi, are seen between the bands of muscle fibres. About these columns and villi there are no decidual cells. The fetal elements themselves are not changed. They show no abnormalities of overgrowth. In other words the appearance is that of normal fetal tissue, invading maternal tissue, because of lack of sufficient decidual reaction.

If death does not ensue and treatment is not prompt, inflammatory changes soon take place. Generalized peritonitis may follow or the fetal sac may be encapsulated, with or without abcess formation. Blakely[2] reported a ruptured uterus with expulsion of the fetus into the abdominal cavity and subsequent peritonitis. The uterus healed, and a vaginal fistula formed. Five months later fetal bones were removed from this cavity and the patient recovered. Markoe's[13] case had ruptured five weeks previous to laparotomy. Fetal death and encapsulation took place. At operation the fetus and sac were removed and the wound in the uterus closed.

The symptoms of rupture of the uteus are usually those of internal hemorrhage with marked shock. They are generally sudden in onset. Hemorrhage may be moderate and shock slight or absent, or it may be so severe that the patient dies before treatment can be instituted.

Abdominal pain, sudden, sharp, lancinating in character, is an early almost constant symptom. Occasionally it is absent, as in Payne's[14] patient, in which a small rupture of an old cesarean scar was found at the second cesarean section. Pain in either shoulder may be present, due to the blood in the peritoneal cavity irritating the diaphragm.

Physical findings are usually those of shock and internal hemorrhage. The abdomen may, or may not, be rigid. Indeed early it is frequently quite relaxed. The uterus is usually tender to palpation. If the fetus has been expelled into the abdominal cavity, the small parts are easily palpated, and two distinct masses may be present. If hemorrhage has been profuse, dullness in the flanks is found on percussion.

The diagnosis is easy in those cases late in pregnancy, with profound shock, severe abdominal pain and dullness in the flanks. In others it is less so, and one must remember that early these patients do not always have definite signs of shock and hemorrhage. Ruptured tubal pregnancy, ablatio placentae, and other acute abdominal crises may be confused with this condition. Many have been operated on for appendiceal abscess, intestinal obstruction, and other acute abdominal conditions.[15]

The treatment of choice for ruptured uterus is early laparotomy with either hysterectomy or repair of the laceration. Hysterectomy is preferable where feasible, for if repair be done, rupture may occur again in a succeeding pregnancy.[16]

Shock must be vigorously combated and blood transfusion should be done if there is any question as to its need.

Packing of the ruptured uterus has been done, but it should be reserved for the exceptional case or one in which laparotomy is impossible. The mortality with this form of treatment is well above 75 per cent.

The maternal mortality has been reduced from around 80 per cent. to 16 per cent. in the past

twenty-five or thirty years. Potter[17] reports a series of 17 cases, 15 of which were subjected to surgery, with one death. This operative mortality of seven per cent. is by far the lowest reported in a series of cases.

Fetal mortality is nearly one hundred per cent. This has not changed as the maternal mortality has, and probably will not in the future.

REPORT OF CASE

Mrs. M. W., aged 31 years, para-three, three weeks from term, had been at bed rest for three weeks for a pre-eclamptic toxemia. Her blood pressure had been 150/90 and urine negative. While on her way to the bath room, one hour before examination, she was seized with a sharp lancinating pain in her abdomen. She stated that it had been steady since that time and that it did not feel like labor pains. She felt slightly dizzy if she sat up and motion made the pain worse.

The past history was essentially negative with the exception of a curettage three years ago, following which she was ill for three weeks. The two previous pregnancies had been normal.

Examination, one hour after the pain began, revealed an anxious patient not as florid as usual though not pale. Temperature 97 F., pulse 96, but not as full as usual; respiration 22; blood pressure 100/70. The head, neck, heart, lungs, and extremities were essentially negative. The abdomen was soft and pliable, but palpation over the uterus elicited marked tenderness over the whole organ. There was no vaginal bleeding. Rectal examination revealed a thick cervix admitting the tip of the finger. Fetal heart tones could not be heard.

In view of the drop in blood pressure, change in quality of the pulse, the above history and physical findings, a diagnosis of ablatio placentae or possible rupture of the uterus was made. The patient was sent to the West Suburban Hospital. On her arrival there about an hour later the picture had changed. She was in severe shock, with small rapid pulse, rapid gasping respiration, and a pale waxy appearance. There was dullness in the flanks and the abdomen had increased in size. Severe internal hemorrhage was evident, probably due to rupture of the uterus.

Laparotomy was done under ethylene anesthesia. On opening the abdomen the blood literally gushed out and three large clots, each the size of a fetal head, were removed. There was a linear rupture, three centimeters long at the fundus, to the left of the mid line and posterior to the insertion of the left tube. About this area the uterus was very thin. The uterus was opened and a still born male child delivered followed by a hysterectomy.

Hypodermoclysis of normal salt solution was given during the operation and a blood transfusion of seven hundred and fifty cubic centimeters was given immediately following. After the transfusion the patient's condition improved.

Convalescence was uneventful and the patient left the hospital on the fourteenth day. Liver extract and iron were used subsequently for the anaemia.

PATHOLOGICAL REPORT BY E. C. PIETTE, M.D., WEST SUBURBAN HOSPITAL, OAK PARK, ILINOIS

There is a rupture of the uterine fundus three centimeters long, with the placenta tamponing the rupture. The uterine wall, over an area of about seven centimeters about the rupture is very thin and bulges outward.

Microscopic examination reveals a round cell infiltration of the myometrium. There are areas in which columns of trophoblasts have invaded deep between the muscle fibres. There are no decidual cells in these areas. The chorionic villi are normal in appearance. No scar tissue was noted in the sections.

Summary

A case is reported of rupture of the fundus of the uterus three weeks before term. Curettage three years previous followed by three weeks of illness can be incriminated as a predisposing factor. Porro cesarean with removal of the dead fetus resulted in the recovery of the patient.

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CONTINUOUS GASTRIC SYPHONAGE

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Continuous syphonage is not generally recognized as a therapeutic measure, and we believe that one of the reasons for this is that the apparatus is thought to be too complicated and elaborate to be of practical use. When we come to analyze the apparatus and the principles underlying its mechanism, as outlined by Bartlett, we can see that it is really very simple to operate; that the indications for its use are quite definite; and that the benefits to be derived both in prevention and cure are such as cannot be obtained in any other way.

Apparatus. The apparatus is composed of three units (Fig. 1): a receptacle, a suction chamber which is composed of the barrel of a 20 cc. syringe fitted with a two-holed rubber stopper, and a basin. The rubber stopper is fitted with two glass connectors. One is straight and is connected by rubber tubing to the receptacle above. The other connector is curved and joins the nasal tube.

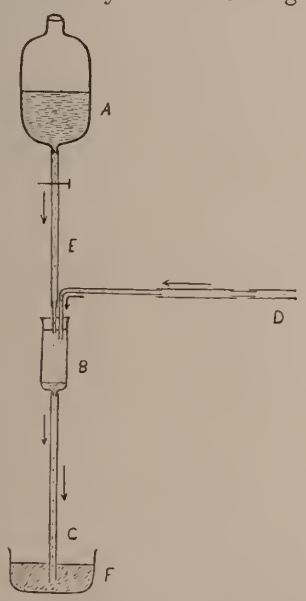


Fig. 1. Gastric Syphonage Apparatus. A, receptacle; B, suction chamber; C, tube from suction chamber to basin; D, nasal tube; E, tube from receptacle to suction chamber; F, basin.

*Interne and Staff member of St. Anthony's Hospital respectively.

The suction chamber empties into the basin by means of a suitable length of rubber tubing, the end of which is beneath the water in the basin. It is essential that all connections be air-tight or the suction action is lost. All glassware should be such that can withstand repeated sterilizations.

The receptacle is filled with water and allowed to drip at the rate of 60-80 drops per minute. The water runs out of B through C and creates a vacuum behind it, the force of which is exerted through D as a suction on the nasal tube. Soon after the suction is started, stomach contents will appear and pass through to the basin.

Continuous syphonage cannot be maintained by the simple use of a nasal catheter, because the entrance of air and gas into the system interrupts the syphonage.

Calculations. The apparatus permits us to determine with mathematical accuracy the functional capacity of the stomach, and we can measure in cubic centimeters the amount of fluid passing through the pylorus in either direction.

The patient is encouraged to drink as much fluids as he likes, and as the gastrointestinal tonus improves, increasing proportions of the oral intake will go through the pylorus instead of being removed by suction.

Three factors enter into the calculations:

1. The amount the patient drinks.
2. The amount run out of the receptacle.
3. The amount in the basin below.

Subtracting the oral intake from the difference between the amount in the basin and the amount placed in the receptacle above gives a certain quantity of fluid in cubic centimeters. This figure, known as the pyloric balance, tells us what has happened to the fluid taken by mouth. Bartlett determines the pyloric balance per hour by basing the calculations on a twelve-hour period and dividing by twelve to give the amount lost or absorbed per hour.

EXAMPLE 1

4200 cc.	basin
2000 cc.	receptacle
2200 cc.	total drainage from stomach
1500 cc.	by mouth
700 cc.	pyloric balance for twelve hours.

This is referred to as a negative pyloric balance because the amount recovered from the

stomach is greater than the oral intake.

The term pylorus is used merely to indicate the direction of flow of the fluid through the pyloric ring, rather than any physiological action of the muscle itself.

EXAMPLE 2

2800 cc. basin
2000 cc. receptacle
800 cc. total drainage from stomach
1500 cc. by mouth
700 cc. pyloric balance.

This is referred to as a positive pyloric balance, because the amount taken by mouth is greater than the amount recovered from the stomach. In other words, the tonus has improved to such an extent that it will permit the passage of fluids through the pyloric ring.

There are several difficulties to be considered in the operation of continuous syphonage which may interfere with its successful use.

1. Accurate records of essential data are necessary. The nurses on general duty can easily be trained to operate the apparatus and make the necessary calculations, if time be taken to show them how this is done.

2. Continuous syphonage may be interrupted by a plug of mucus in the nasal tube. When this occurs the tube should be withdrawn about one inch and reinserted. If this is unsuccessful in reestablishing the suction, then the nasal tube should be disconnected and some water injected to clear it. (See note below.)

3. To test the efficiency of the apparatus the patient should be given some water to drink. This should always result in the immediate flow of fluid into the suction chamber.

4. The nasal tube should be removed, cleansed, sterilized and inserted into the other nostril every twenty-four hours.

Advanatges. The purpose of continuous syphonage is the withdrawal of fluids in order to empty the gastro-intestinal tract above the point of obstruction and keep it empty. Continuous dilatation of the gut and stomach above the point of obstruction is maintained by the outpouring of secretions in the lumen. We have observed that by the application of continuous syphonage the patient can drink freely with freedom from nausea. There is also an improvement in circulatory and respiratory mechanisms resulting from lowering of the diaphragm concomitant with relief and prevention of distention. Mouth cleanliness is maintained and parotitis prevented by allowing the patient to drink. Chloride loss and nutrition is made up by parenteral administration of saline and glucose solutions. Bartlett emphasizes the fact that chloride and water loss is much less when continuous suction is used rather than intermittent aspirations.

By the use of this method we can eliminate guess-work and determine accurately just what the gut is doing; and, as recovery proceeds, to test the functional capacity of the stomach with increasing amounts of fluids and later soft foods.

CASE REPORTS

Case 1. Female, aged 35 years, with history of gall bladder symptoms for four years. Diagnosis, chronic cholecystitis and cholelithiasis. Operation, cholecystectomy.

Following operation the patient developed nausea and frequent vomiting of dark green bile. On the next day she was unable to retain fluids by mouth, and had a moderate degree of distention. Subcutaneous and intravenous fluids with gastric lavage gave relief for only a short time, the nausea soon returning. These symptoms, with the additional one of singultus, became more marked during the next two days, unrelieved by lavage, pituitrin, and enemata. Evidently the stomach and upper intestines were unable to regain their tonus due to the presence of excessive secretion in the stomach.

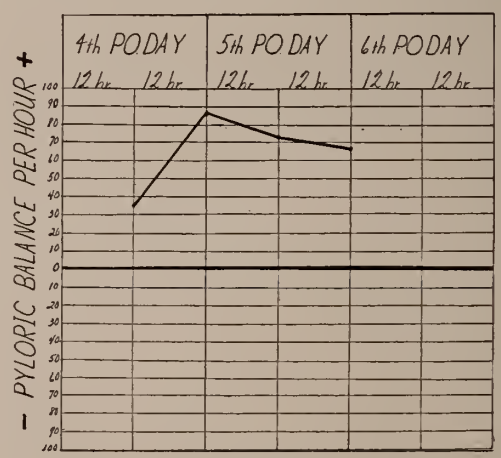


Fig. 2. Case 1. Cholecystectomy. P. O. Ileus and Singultus.

On the fourth post-operative day continuous gastric syphonage was instituted. Singultus stopped at once and distention was soon relieved. In the first twelve hours the patient had a positive pyloric balance of 33 cc. per hour; that is, she was able to drink 900 cc. of water comfortably without nausea, and 400 cc. as calculated, passed through the pyloric ring. In the

Note: Since publication of this article the apparatus has been modified by the addition of a "T"—tube at D for cleansing and flushing purposes; rather than disconnect the apparatus with possible loosening of the connections.

next twelve hours the pyloric balance was plus 86. (Fig. 2.) On the fifth post-operative day the syphonage was discontinued, and the patient was able to enjoy full fluids and soft diet without nausea or vomiting. The post-operative course from then on was uneventful.

Case 2. Female, aged 49 years, with history of gall bladder symptoms for five years. Diagnosis, chronic cholecystitis and cholelithiasis. Operation, cholecystectomy, with exploration of common duct and T-tube drainage.

Following operation the patient was unable to retain fluids per orum because of nausea, vomiting, and eructations of gas. Twelve hours later gastric syphonage was started, and the nurse instructed to give the patient as much water as she desired. During the next twelve hours she drank 2400 cc. of water without nausea or vomiting, with a pyloric balance of plus 120 cc. per hour. In the next twelve hours she drank 5600 cc. of water in comfort with a positive pyloric balance of 63 cc. per hour. (Fig. 3.) Syphonage was discontinued on the second post-operative day. The patient made an uneventful recovery, and at no time did she have any symptoms of ileus.

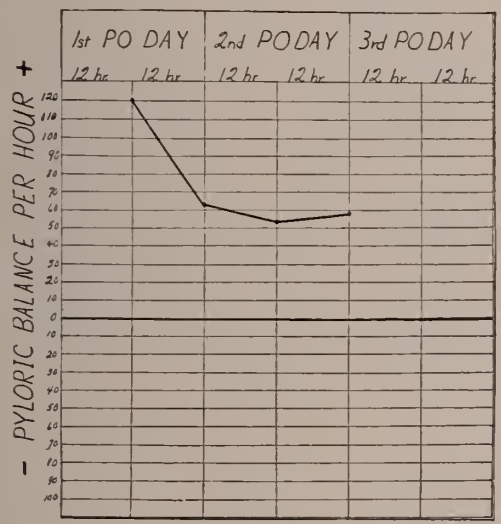


Fig. 3. Case 2. Cholecystectomy. Early Manifestation of Ileus.

Case 3. Female, aged 58 years, with history of gall bladder symptoms for one year. Cholecystectomy performed.

No fluids were taken by mouth during the first post-operative day, but vomitus of 100 cc. of clear fluid occurred. Syphonage was started and small amounts of water at frequent intervals were given per orum The pyloric balance was not recorded for the first twelve hours, but the patient was able to drink water and enjoy it without nausea. In the next twelve hours a positive pyloric balance of 21 cc. per hour was found. During the next thirty-six hours this steadily advanced to 96 cc. per hour when the syphonage was discontinued. (Fig. 4.)

As in the last case, the patient at no time showed signs of ileus and the remainder of her course was uneventful.

Case 4. Male, aged 66 years, with history of gastric symptoms for two years. Diagnosis, carcinoma of the stomach, confirmed by x-ray and laboratory findings. Gastric resection, Polya type, performed.

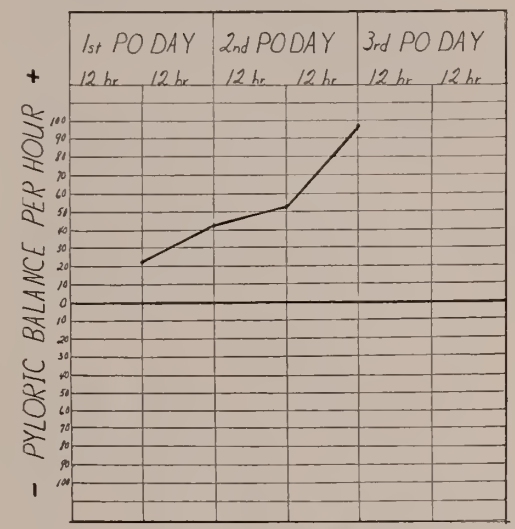


Fig. 4. Cholecystectomy. Early Manifestation of Ileus.

Nine hours after operation vomiting began and continuous syphonage was started. During the next thirty-six hours he was given nothing by mouth, fluids being administered by venoclysis, hypodermoclysis, and proctoclysis. In the first twelve hour period the pyloric balance was minus 79 cc. per hour. In the second

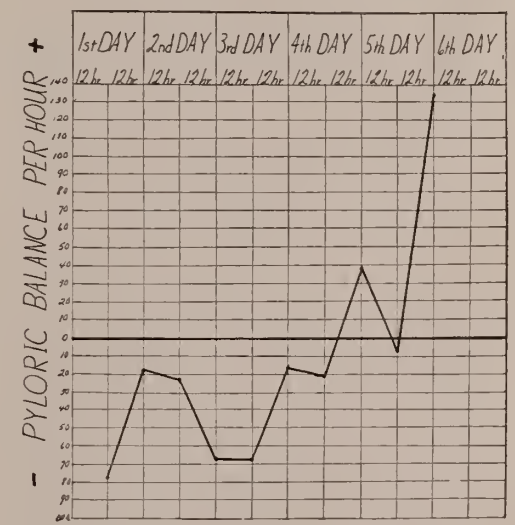


Fig. 5. Gastric Resection. P. O. Vomiting and Retention.

twelve hour period it was minus 18 cc. per hour. In the third twelve hour period it was minus 22 cc. per hour. The patient was then given fluids by mouth in small amounts at frequent intervals, and in the next twenty-four hours a negative pyloric balance of 67 cc. per hour occurred. The syphonage was maintained

for another forty-eight hours, during which time the pyloric balance gradually mounted to plus 134 cc. per hour, when it was discontinued. (Fig. 5.) At no time since did the patient have nausea, vomiting, or distention.

Summary of Case Reports. In the first case described the patient was relieved of ileus and hiccups by continuous syphonage where other methods had failed.

In the second and third cases early manifestations of ileus were present, and these were checked.

In the fourth case post-operative vomiting and retention were efficiently relieved, and the apparatus added materially to the patient's comfort.

CONCLUSIONS

1. Continuous syphonage may be used with success in post-abdominal operations where acute dilatation of the stomach, gastric retention, and upper intestinal ileus are likely to, or have occurred. The comfort of the patient is greatly helped by relief from vomiting, and ability to drink water freely.

2. The apparatus is simple and efficient, but requires care in handling, the details of which have been considered.

3. Four cases with graphic charts illustrating the results have been presented.

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TULAREMIA

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CHICAGO

Tularemia, though receiving considerable attention recently, is still of sufficient rarity to merit consideration. It is quite probable, however, that the disease is not as rare as the records indicate. This case is reported to stress the importance of differentiating tularemia from a number of other conditions which it somewhat closely simulates and also because many of these cases present a rather indefinite and at times confusing clinical picture.

Tularemia, also referred to as Francis' disease, has a rather fascinating history and is the first American disease because described by an American, has been thoroughly investigated by Americans and has so far been reported present only on the American continent. It was first discovered in 1907 by Martin, an American ophthalmologist in Arizona, who had observed five human cases of a disease which he attributed to an infection resulting from skinning and dressing wild rabbits. In 1910 Pearse of Utah described nine cases of a disease of men which was for several years popularly known as Deer-fly fever. McCoy and Chapin in 1911 isolated a specific organism from ground squirrels to which organism they gave the name of Bacillus tularense because the organism was first discovered in squirrels in Tulare County in the State of California. It was Edward Francis of the United States Public Health Service who, in 1919, established a field laboratory in Utah in order to thoroughly investigate the disease. He isolated the organism from numerous wild jackrabbits, shot down or found dead; also from ground squirrels. Its mode of transmission is from animal to animal and animal to man. The host and transmitter of the organism is the common woodtick found in the vegetation in the Rocky Mountain region. The organism is also found in ticks collected from horses, mountain goats, woodchucks, mountain rats, rabbits and ground squirrels. These ticks constitute a permanent reservoir of infection. Fortunately these ticks or lice are found in but a restricted area in this country, mainly Montana. The vast majority of cases of tularemia east of the Mississippi are caused either by contamination or self inoculation. Most cases occur in market men handling wild rabbits, housewives dressing rabbits for the table, farmers or others picking infected ticks or lice from their horses or cattle and who also cut up rabbits for use as bait in fishing. A number of cases have recently been reported in laboratory workers handling rabbits. A report has also been made of a man developing tularemia after being bitten by a ground squirrel. There has so far been no evidence published of the disease being acquired by eating infected rabbits, nor is there any record of the transmission of the disease from man to man. The disease is unquestionably transmitted from rabbit to rabbit through the agency of blood sucking lice, flies and ticks, and from rabbit to man by contamination or direct inoculation. The incidence of the disease conforms to those months

Read before clinical conference at Lutheran Memorial Hospital January 18, 1935.

during which hunting is permitted, namely November, December and January. The incubation period is between 1 and 5 days.

As a result of an analysis of over 500 case reports, four distinct clinical types have been recognized:

1. *The Ulcero-Glandular Type.* In this type of the disease the primary lesion is a papule which develops at the point of inoculation, usually hands or fingers. The papule rapidly becomes painful and swollen, suppurates in the center, liberating a necrotic core and leaving an ulcer about 3/8-inch in diameter with reddish, elevated periphery, a necrotic base and sharply punched out border. The regional lymph nodes, draining the site of inoculation, become painful, tender and enlarged. No other glands are involved. The primary lesion or lesions are essentially granuloma with little or no pus and heal very slowly. In over half of the cases, the glands remain hard and tender for a period of 2 to 5 months and then return to normal. The onset of the disease is sudden with grippe-like symptoms, such as severe headache, fever, chills, sweats, aching pains in back and extremities, vomiting and marked prostration.

2. *Oculo-Glandular Type.* In this type the primary localization is in the conjunctival sac instead of in the skin. Its early manifestations are: Excessive lachrimation, marked irritation, edema of lids and surrounding tissues and the primary lesion or papule on the inferior palpebral conjunctiva with enlargement of regional lymph nodes such as: auricular, post-auricular, parotid and cervical glands.

3. *Glandular Type.* In this type, there is no visible primary lesion. Glandular enlargement and general constitutional symptoms are present.

4. *Typhoid Type.* In this type, fever and prostration are the outstanding symptoms. There is no primary lesion and no adenopathy.

As to the pathology of the primary lesion it is stated by Francis that this consists of a diffuse necrosis with nuclear fragmentation and that the infiltration is mostly of polymorphonuclear leucocytes.

Clinically, besides the sudden onset with grippe-like symptoms, pneumonitis or other lung involvement is a very frequent finding. This involvement very frequently furnishes the presenting symptom complex and is often the cause of death. There is nothing characteristic about the blood examination in these cases except the specific agglutination test with bacillus tularense antigen, which is almost uniformly negative during the first 8 days and uniformly positive thereafter with a steadily increasing agglutination titer as the disease progresses. The average duration of fatal cases reported was 20 days; of cases that go on to recovery, anywhere from three weeks to a year. Most cases that do go on to recovery are characterized by a considerable degree of chronicity with loss of strength for a long period of time and persistence of the agglutination test. The average mortality of reported cases is about 4 per cent.

The diagnosis of the disease is not difficult if one remembers that there is such a disease and that it is not extremely uncommon. It has been aptly said that no one can make a diagnosis of a given disease unless he has that disease in mind. There is nothing characteristic about the onset of the disease for the symptoms closely simulate those of influenza, pneumonia, streptococcus infection or typhoid fever. The history gives the most important clue to the diagnosis. The patient will usually admit having handled rabbits or having been bitten by a tick or a horse fly. The second point of importance in the diagnosis is the primary lesion with regional bubo. It is an easy matter to confirm the clinical diagnosis by the agglutination test with bacillus tularense antigen. The blood is drawn in the usual way and sent to a laboratory where bacillus tularense antigen may be had and if the blood is positive, it will agglutinate with this antigen. All attempts to recover the bacillus tularense from human tissues on artificial culture media have, so far, been futile.

As far as the treatment is concerned, this is purely symptomatic. There is one line of treatment which may be recommended and which should be tried, and that is, the administration of immune human serum from people who have recently recovered from an attack of tularemia. In two cases reported by Harry Leonard Baer, the patients were given roentgen treatment prior to the fourth day of illness. This consisted of a one-half unit of erythema dose of unfiltered rays applied over the primary lesion. Both of these cases showed distinct and marked improvement several hours after treatment with further progress of the disease apparently arrested. X-

ray treatment applied to regional bubo prior to suppuration does not, however, prevent their breaking down nor does it influence the further progress of the disease. There are several things though, which one must not do and which are quite important: one is, do not incise primary lesions. The second one is, do not excise or incise enlarged glands until definite suppuration is present.

REPORT OF CASE

History: Mr. F. M., 42 years old, employed as a butcher in a meat market, seen December 31, 1934, had always been well and healthy. On December 15, 1934, while unloading a barrel of rabbits, he scratched his left hand on a wire around the barrel. To this he paid no attention and continued with his work. During the same day, he also assisted in skinning and cleaning these rabbits. The next day, his hand was somewhat painful and he had some stiffness in the left forearm and arm. During the night, he developed chills, was quite hot, sweated profusely and noticed aching pains in the entire body, especially his back and extremeties. On December 19, he was first seen by a physician, who told him that he had the grippe. He continued to stay in bed but the chills, fever, sweats and aching pains became more severe. At this time or about two weeks after he first became ill, he developed moderate pain in the right side of his chest and a dry hacking cough. The past history was negative for any serious illness. The family history too was entirely negative. The patient is married for a number of years and has two children.

Examination: At the time of the first visit, patient was a well developed, fairly well nourished, middle aged man, obviously acutely ill. He was propped up in bed, somewhat dyspneic and slightly cyanotic. He appeared to be quite toxic. His chief complaint was marked weakness and a tight, non-productive cough. The physical findings were as follows: Excessive lachrimation of both eyes, showing some irritation of the conjunctivae but no lesion of any sort around the eyes. The pupils were dilated but equal in size and reacted to light and accommodation. No adenopathy about the face or neck was found. The chest was flattened anteroposteriorly and revealed considerable impairment of resonance over the middle and lower lobes of the right lung posteriorly and numerous bubbling rales over these two lobes. No change of breath sounds, however, was noted. The heart was slightly enlarged to the left. Heart tones were normal in character and rhythm. There were no murmurs. The pulse was 92, respirations 24, blood pressure was 140 systolic and 85 diastolic. Examination of the abdomen was essentially negative except for an enlarged liver, the lower border of which was two to three finger-breadths below the costal arch. The spleen could not be felt nor were there any other palpable masses in the abdomen. Examination of the left upper extremity revealed the presence of two small ulcerated areas, the edges of which were raised and somewhat friable, the base punched out and covered with a dry crust. These lesions were located on the outer surface of the hand at base of fifth metacarpal and on the dorsum of the interphalangeal joint of the thumb. There was no edema of the tissues surrounding these lesions nor any evidence of acute inflammatory reaction or lymphangitis. The glands in the left axilla were enlarged, painful to the touch and matted together into one solid lump. There was no evidence of these glands breaking down. Examination of the right extremity was essentially negative except for a rather extensive exfoliation of the skin with superficial, irregular fissures, not extending into the corium. The laboratory work at this time was not remarbable: hemoglobin 95%; red blood cell count 4,550,000; white blood count 6,900 with a differential count of 62% polymorphonuclears and 38% small lymphocytes. The urine was entirely normal. Examination of the sputum showed the presence of a moderate number of pus cells and a moderate amount of micro-organisms of mixed infection, streptococci, staphylococci and various diplococci. No acid fast bacilli were found. The stools showed the presence of no typhoid or paratyphoid organisms and a culture of feces for these organisms was entirely negative. Agglutination tests for typhoid, paratyphoid A and paratyphoid B were negative. Blood Wassermann and Kahn were negative. A stereoscopic examination of the chest showed "an area of partial density in the right lateral chest wall between 4th and 6th ribs suggestive of pneumonitis. Its margins shade gradually into normal clearness. The bronchial markings in this location were accentuated and the right hilum was denser than the left. There are calcified lymph nodes in both lung roots and also behind the anterior end of the last right rib. The pleural margins showed no gross change. Cardiac diameters are normal." The diagnosis that suggested itself most readily was, of course, a pneumonitis, either of the lobar or the bronchopneumonic type. There were several features, however not in favor of this diagnosis, chiefly the absence of any change in breath sounds noted on examination. The question of typhoid or paratyphoid infection was, of course, considered. In view of the definite history of an injury while handling rabbits and the presence of primary lesions on the left hand with bubo of the regional glands, infection with bacillus tularense became quite probable. An agglutination test of the patient's blood with bacillus tularense antigen was definitely positive for a dilution of 1-80. A second agglutination test several days later was positive in a dilution of 1-640.

Diagnosis: Tularemia, ulcero-glandular type.

Course and progress: This man became acutely ill on December 17, 1934, two days following a slight trauma to his left hand while handling rabbits. For the first two weeks of his illness, he was confined to bed at home and treated for influenza. On December 31, he was removed to the hospital where the diagnosis of tularemia was confirmed by several agglutination tests. For three weeks following his admission

to the hospital he continued to run a toxic temperature the peak of which, somewhere between 102 and 103 was always reached at 4 A. M. The lesions on his hand remained stationary while patient was acutely ill. The bubo in the left axilla continued large and tender but showed no evidence of suppuration or breaking down. The findings in the right lung also remained practically the same with, at no time, any evidence of extension of process or change in breath sounds. He felt quite well but continued to complain of marked weakness and prostration. At the end of this time or, approximately 5 to 6 weeks after he first became ill, his temperature gradually declined, weakness and prostration diminished and he began gaining in weight. With this general improvement there occurred also some slight recession in the bubo and a gradual healing of granulomatous lesions on the hand. The findings in the right lung cleared up entirely.

SUMMARY

1. A brief description of tularemia with the report of a typical case is presented.

2. Tularemia is not uncommonly met with in general practice especially during months of November, December and January.

3. The diagnosis of the disease is not difficult if one keeps in mind that there is such a disease.

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A FAMILIAL HEMORRHAGIC CONDITION OF AN UNUSUAL TYPE

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Atypical chronic cases of hemorrhagic diathesis are known to occur. There have been described in the literature at various times hemorrhagic diathesis which cannot be classified with the recognized types of hemorrhagic conditions. These unusual types of bleeding are to be differentiated from hemophilia and purpura hemorrhagica (thrombo cytopenic purpura). Glanzman[1] described an unusual form of familial purpura involving both sexes. Blood studies showed occasional prolongation of the bleeding time and constant failure of the clot to retract normally. For the condition he has suggested the name, hemorrhagic thrombasthenia. Minot[2] reported five similar cases in two difierent families. In his cases the only blood studies deviating from the normal were the bleeding times, which were consistently prolonged. Giffin[3] and later Kennedy[4] studied a nine-year-old girl with epistaxis and other purpuric manifestations in whom the bleeding and prothrombin times were prolonged, but without a familial history of bleeding. Rothman and Nixon[5] and others[6, 7] have described somewhat similar cases. Farber[8] reported a family of over 100 persons in which 25 members suffered atypical pathologic hemorrhage. The laboratory studies were quite constantly negative, with the exception of the bleeding time which was intermittently prolonged. Both males and females were involved.

In this communication there are reported two hitherto unrecorded families of similar bleeders whose genealogic tree includes over 170 persons. The families are distantly related, but it has been impossible to conclude the exact relationship of one family to the other due to inability to obtain data earlier than that contained in the accompanying genealogic trees. Among the 170 persons there have been thirteen known male bleeders, two female bleeders, and one baby boy, a newborn, who would be designated a potential bleeder as the basis of certain laboratory studies.

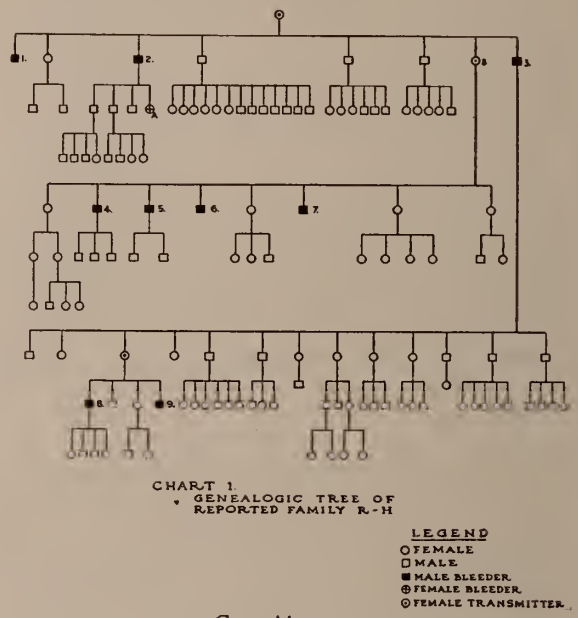
In all the bleeders there was a history of ecchymosis both spontaneous and traumatic. The bleeding experiences in the males had occurred with minor injuries, following the extraction of teeth, and shortly after tonsillectomy. One of the females had suffered severe hemorrhages following extraction of teeth, and following an appendectomy an almost fatal episode of bleeding had occurred. The other female had had sustained hemorrhages after trivial injuries and prolonged menstrual periods and menorrhagia over a thirty year period. The bleeding tendency was usually first noted in early childhood. In certain members the severity of the bleeding tendency diminished as later adult life was attained. The affliction varies in degree of severity, some persons being involved much less than others. In two cases only can death be ascribed directly to the bleeding. The bleeding was

described by members of both families as "nine day bleeding." Following injury a clot formed which persisted until about the ninth day. At that time the clot often broke with resulting hemorrhage. It was generally considered that when "breaking of the clot" occurred before the ninth day, serious hemorrhage or even death would ensue.

The condition is transmitted by females and males; there was, however, only one instance of transmission by a male in this report. This transmission is compatible with the genetics of hemophilia. Few patients with hemophilia reach adult life. Among these reported cases only one death occurred in childhood, and the average age of the ten bleeders who have died was over 42 years. Another variation from typical hemophilia was the presence of a female bleeder in each family. Moreover, the most characteristic site of hemorrhage in hemophilia is into the joints. Among the reported cases there was not one instance of hemorrhage into the joints. Laboratory studies, including the blood Wassermann, bleeding time (method of Duke), coagulation time (method of Boggs), clot retraction, platelet count, complete blood count, fragility of the erythrocytes, and tourniquet tests were all negative on two male and one female bleeder whom were studied. The same blood studies were made on eight other males from the same families. None of these individuals had been considered bleeders, but their place in the genealogic tree would be compatible with the presence of the bleeding tendency. The studies were all negative.

The newborn baby showed on two occasions prolongation of the bleeding time. On his tenth day of life a blood platelet count showed a diminished number of platelets, but the platelet count at two and a half months of age was normal. A subcutaneous puncture of the skin caused no hemorrhage. Hess[9] has emphasized that hemophiliacs usually show hemorrhage after subcutaneous puncture of the skin. He was not circumcised and has not as yet suffered a bleeding episode. Hemophilia is characterized by a prolongation of the coagulation time, normal bleeding time, and normal, or increased, blood platelets. It has been said[10] hemophiliacs tend to have more daughters than sons. This was not borne out in this study.

Chart 1 and Chart 2 are the genealogic trees of the reported families. In the abstracts, M denotes a male and F a female.



Case Abstracts

Chart 1.

M-1. Was a moderate bleeder. Thoroughout life he had frequent spontaneous and traumatic ecchymosis and had bled severely from trivial injuries. He died at the age of 21 years from pulmonary hemorrhages said to be due to tuberculosis.

M-2. Bled severely following the extraction of teeth, and on several occasions became almost exsanguinated from bleeding following minor injuries. He spent months in bed on several occasions following severe hemorrhages. At one time he thought he bled only from wounds which occurred on the left side of his body. He died of Bright's disease at the age of 60. This patient was the only male bleeder who transmitted the disease directly.

M-3. Suffered from profuse hemorrhage following slight injury, and at one time was confined to bed for weeks because of a severe bruise on his leg. He died at the age of 74 of apoplexy.

F-A. Is the only female child in the family of M-2. For 30 years she experienced menorrhagia, and with each period was confined to bed from three to five days because of the excessive bleeding. On one occasion she bled profusely following the extraction of a tooth. The previously mentioned laboratory studies on this woman were all within normal limits.

M-4. Bled from slight wounds, and on one occasion "nearly died" from hemorrhage following a small laceration of the finger. He died of heart trouble at 62 years of age.

M-5 and M-6. Died at ages of 44 and 43, respectively, following hematemesis occurring with ulcers of the stomach. Both were regarded as severe bleeders during life.

M-7. Suffered a fatal hemorrhage at the age of three years following a small cut on the head.

M-8 and M-9. Are living and are 41 and 37 years of age, respectively. The latter bled excessively following the extraction of teeth, and after tonsillectomy his doctor thought he might die of hemorrhage. In recent years the tendency to bleed has seemed diminished. The complete laboratory studies previously mentioned were made on both these individuals and were within normal limits.

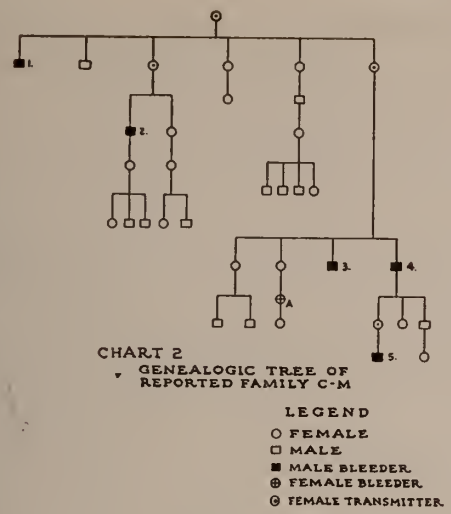


Chart 2.

M-1. Died at age of 21 from internal hemorrhages which occurred from an injury following a wrestling match. He was a known bleeder from childhood.

M-2. Was a severe bleeder from slight injuries. He died at age of 55 from asthma.

M-3. Is now aged 60. At one time he bled 56 hours from a small laceration of the head. He is regarded by others in the family as one of the most severe bleeders. His home is on the west coast, and little information could be obtained regarding the present status of his bleeding tendency.

M-4. Died at age of 43. A day following extraction of a tooth with resultant hemorrhage he sustained a cut on the hand. The severe hemorrhage following this caused his death.

M-5. Is a baby aged 2½ months. On the tenth day of life the bleeding time was 25 minutes, and the blood platelets 72,000. At the age of 2½ months the bleeding time was 10 minutes, but the platelets numbered 324,000. All other blood studies made were negative.

F-A. Is a nurse 36 years of age and living in Colorado. About ten years ago she suffered a serious hemorrhage from the operative wound following appendectomy. She has bled profusely and for a prolonged time following the extraction of teeth. Because of her bleeding tendencies physicians have been reluctant to operate upon this woman's mother despite the fact the latter is not considered a bleeder.

The mother of 3 and 4 in Chart 2 bled rather profusely following extraction of teeth and suffered frequent traumatic ecchymosis. She died at age 70 from pernicious anemia. She has not been listed as a bleeder because she had not been considered so by members of the family. F-B in Chart 1 was a woman who married her maternal cousin. Her mother and her husband's mother were sisters in a family in which some of the women were known to transmit the bleeding tendency.

Discussion of Findings. Two distantly related families of Scotch-Irish descent, most of whom are residents of Illinois, tainted with a hemorrhagic state, are herein presented. Among the 170 individuals there were 13 male bleeders, 2 female bleeders, and one baby boy who, on the basis of blood studies, has been designated a possible bleeder. In two individuals, one in each family, hemorrhage has been the primary cause of death. The fatal hemorrhage followed slight wounds in both instances. Two males have died from hematemesis and melena associated with ulcers of the stomach. The basis for diagnosis of peptic ulcer in these cases could not be obtained. One male died from pulmonary hemorrhages associated with tuberculosis, and another from internal bleeding subsequent to an injury incurred while wrestling. In two instances death was due to cardiorenal disease. On the whole the two females, one in each family, were less severely affected than the males. No telangiectasia has been found, and splenomegaly is absent. Trauma has been the principal factor in precipitating the hemorrhagic events. Laboratory studies have been done to rule out the recognized types of hemorrhagic states as the diagnosis in this case. These studies have been negative except for consistent prolongation of the bleeding time in a baby who has had no bleeding episode. Certain unaffected members of the family have been seen as patients for various ailments, and none of these exhibit the tendency to pathologic hemorrhage. Blood studies on these individuals have likewise been normal. Transmission has been entirely by the female except for one instance. M-2 in Chart 1 was a male bleeder and transmitter. One female bleeder was an only child, and the other was the only one in a family of four children who demonstrated pathologic bleeding. The genealogic tree in regard to the males with the exception of M-2 resembles that of hemophilia.

The type of bleeding is of particular interest because it so closely simulates hemophilia and purpura hemorrhagica. This familial defect is quite evidently carried in the germplasm. The points differentiating it from hemophilia have been discussed. Reports in the literature of this type of hemorrhagic diathesis have been very sparse. No diagnosis has been attempted for this unusual type of bleeding.

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REPORT OF A CASE OF SEVERE WHOOPING COUGH RESPONDING TO PERTUSSIS VACCINE (SAUER)

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Pertussis vaccine is gaining recognition not only as a dependable prophylactic but also as a potent active agent in the management of whooping cough. In February, 1935, Marbel reports in this journal the details of a case yielding dramatically under the influence of the vaccine and notes fourteen other cases of moderately severe whooping cough giving a uniformly favorable response. To this group I am adding another case with favorable results.

On December 26 1934, I was called to attend three children, Joe O., age 2; Marie O., age 3½; June O., age 4½, all of whom began to suffer from cough and frequent whoop followed by vomiting. During the succeeding three weeks Joe and Marie became worse, whooping and vomiting twelve to fifteen times every hour during the day and almost continuously with sporadic rest periods during the night. Examination of the children would precipitate a violent spasm of coughing followed by a deep cyanosis, then a long whoop to be succeeded by a gush of food material from the stomach. The conjunctivae were markedly injected, the color of the skin quite pale and the tongue heavily furred. Exhaustion, weakness, dehydration, and loss of weight rapidly ensued. Only liquids given frequently and in small amounts could be tolerated. Cough syrup containing codein, paregoric, belladonna, and bromide was useless. The barbital hypnotics would not stop the paroxysms at night.

On January 25, 1935, a month after the onset, I administered Pertussin Vaccine (Sauer), Lilly & Co., to Joe by injecting subcutaneously 1 cc. in each arm; on January 27, 1 cc. in each leg; on January 29, 1.5 cc. in each arm; and on January 31, 2 cc. in the leg. The clinical picture was unchanged until February 5, 1935, when the mother noticed that the paroxysms occurred less often and were of milder degree during the night but were the same as previously during the day. On February 9 they had almost completely disappeared at night and occurred only several times during the day. On February 18 the spells during the day were rare and the vomiting had ceased. Two days later all signs of whooping cough were absent though the child developed a right infra-auricular abscess which yielded to incision and drainage.

On the other hand, Marie, who had not been given the vaccine, continued to have a severe grade of whooping cough, unchanged throughout February and the last of March, and has suffered considerable loss of weight. Her last paroxysms occurred on March 30. June had undergone a mild whooping cough throughout this period and her last paroxysms occurred March 15.

PERNICIOUS ANEMIA FOLLOWING GASTRIC SURGERY

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A considerable amount of attention has recently been directed toward the theory that pernicious anemia is a deficiency disease closely related to gastrointestinal disturbances.

Achlorhydria is commonly found in association with pernicious anemia and seems to be the usual fault. Other disturbances may apparently lead to this fault in providing the necessary elements for the production of blood.

Castle, Townsend and Heath[4] have demonstrated that the secretions of the normal human stomach react with rare chopped-up beef muscle, to produce a substance which like liver, promotes blood regeneration and clinical improvement when fed to patients with Addisonian anemia although the same amount of beefsteak itself, the digestive juices alone or artificial digestion in a test tube completely fail. These authors also showed that the gastric juice containing normal amounts of free Hcl, pepsin and rennin of two patients who had a macrocytic anemia in every respect similar to the blood picture of pernicious anemia was found incapable of reacting with beef muscle in the above manner. Castle[2] believes that this indicates that the stomach of a pernicious anemia patient lacks some factor which permits the active principle to be obtained from ordinary meat, and favors the view that the metabolic error lies not within the liver cells but in some defective function of the alimentary tract.

A number of cases of pernicious anemia developing two to eight years after gastric resection for ulcers have been reported by others, [1, 6, 7, 10, 12, 15, 17, 18, 26, 29]. All of these showed the typical blood picture of pernicious anemia and responded to liver therapy.

These cases with possibly one or two exceptions [6, 30] have been observed by physicians other than the one who performed the initial operation on the stomach.

Meulengracht,[21] Hartman,[16] and Little et al[19] report cases of pernicious anemia which developed following intestinal strictures of the small bowel. Seyderhelm[27] is quoted as having had

one such patient who appeared to be cured by removal of the stricture.

Davidson[7] described what he believed to be the only case in the literature showing the coexistence of duodenal ulcer and pernicious anemia. This was a case of perforation which came to operation and eventually recovered.

The case reported below is of interest because the patient has been continuously observed over a period of five years. There was clinical evidence of a peptic ulcer at the onset which was demonstrated on the x-ray films and was substantiated by gastric analysis. After a period of treatment under the usual medical procedures had failed, surgery was resorted to and the above diagnosis was further substantiated.

The blood picture remained normal for a period of two years following the surgical intervention after which what appeared to be a secondary anemia quickly progressed to a typical primary type of anemia. There was prompt re-

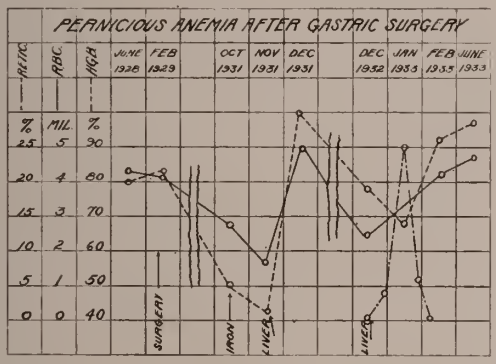


Chart 1. A five-year chart showing the hemoglobin and red cell counts before and after surgery for peptic ulcer. The arrows mark the periods when iron and liver therapy were begun. One typical reticulocyte curve is shown.

sponse to liver therapy, a subsequent relapse one year later with an equally good response to treatment. The patient remains well at this writing and performs heavy manual labor daily.

REPORT OF A CASE

J. F., a 43-year-old male weighing 125 lbs. (57 Kgm.), was first seen in December, 1927, when he complained of generalized urticaria which had persisted for ten years and occurred at various times during each day. Skin sensitization tests showed response to numerous food stuffs and other unrelated substances. At that time he also complained of transient epigastric distress and anorexia. A request for gastrointestinal x-ray studies was refused but an Ewald test meal showed a mean total acidity of 110 and free Hcl of 86. Only moderate relief was obtained by alkalies and a selective diet.

In June, 1928, six months later, the patient again complained of a burning sensation in the epigastrium, nausea, vomiting of bile and loss in weight. Gastrointestinal x-rays were obtained at this time which showed lesions presumed to be pre- and post-pyloric ulcers with adhesions about the pylorus. The urine showed only a trace of albumin, the red cells numbered 4,210,000, the white cells 5,500 and the Hgb., 80%. A modified Sippy regime was instituted which was quite rigidly adhered to for several months but the results under medical management were disappointing so in February, 1929, he submitted to surgery. A mass of dense adhesions was found around the pyloric end of the stomach and over the pylorus. The gall bladder appeared to be normal but failed to empty on pressure. A posterior-gastrojejunostomy was done, the recovery from which was uneventful.

Fluoroscopy in June, 1929, five months after the operation, showed the stoma to be patent and functioning well. During the succeeding two years there were no specific complaints although the urticaria as an allergic manifestation continued unabated.

In October, 1931, two and one-half years following the operation, the patient again returned complaining of nausea, burning in the epigastrium, vertigo and regurgitation of bile. The stools were normal in color and free from blood. The icterus index was normal, the urine negative and the blood showed a Hgb., of 50%, color index I, red cells 2,710,000 and white cells 5,100. The red corpuscles were pale and showed no variation in size nor shape. X-ray studies at this time showed barium to pass through the gastroenterostomy stoma with a satisfactory degree of rapidity. There was no filling of the pyloric extremity nor of the duodenal bulb. Graham-Cole visualization of the gall bladder showed filling, condensation and emptying time to be satisfactory.

Ulcer management was again resorted to. Twelve cc. of Elixir I. Q. & S. by mouth and intramuscular injections of Iron Arsenite, 1 gr. (equivalent to Arsenic Trioxide 0.0013 Gm) were administered daily for ten days on the presumption that the anemia was secondary in type. The subjective sensations improved markedly and there was an increase in weight of 7 lbs. (3.2 Kgm.) in two weeks. At the expiration of this time, however, the skin became markedly icteric, the eyes were glassy and the lids ptosed. Only with difficulty could the patient remain awake and when awake the vertigo was distressing. There was an abduction weakness of the right arm. Examination of the blood showed Hgb., 43%, color index greater than 1, red cells 1,730,000 with marked variation in the size and shape of the red corpuscles. The stomach contents following an Ewald meal contained a trace of blood, no free Hcl and one large Gram positive bacillus with square ends. A diagnosis of primary anemia was now made and 20 Gm. of fresh calves liver daily by mouth was prescribed at this time.

After two weeks there was considerable improvement both subjectively and objectively. The skin was

much less icteric, there was no vertigo or drowsiness and of greater interest to the patient there was an absence of the urticaria for the first time in ten years. At the expiration of two weeks daily doses of 2 cc. of liver extract 343 was injected intramuscularly for 10 days. Desiccated hog stomach was administered daily in 20 Gm. doses over a period of seven weeks, after which the dose was reduced to 10 Gm. daily.

Eight weeks following the onset of treatment the patient had no complaints, the urticaria had not returned, there was no gastrointestinal distress, the right arm had regained full function and the blood picture remained at a normal level.

In December, 1932, one year later, there was a typical recurrence accompanied by the usual symptoms. The red cells numbered 2,570,000, the white cells 2,700, the Hgb., 78%, and the color index, 1.5. No reticulocytes were found. The response to liver extract 343 intramuscularly and desiccated hog stomach by mouth was as effective as in the former instance.

The accompanying chart demonstrates the changes in the blood picture over the five year period of observation.

SUMMARY AND CONCLUSIONS

A case of pernicious anemia is reported which apparently began as a secondary anemia two and one-half years after gastric surgery for ulcer. During the period of treatment with iron the anemia rapidly progressed to a typical primary type.

This case and those quoted from the literature suggest that achylia gastrica is a factor of etiological significance when appearing subsequent to gastric surgery for ulcers.

This added case, tends to strengthen the theory that there is a relationship between the secretions of the stomach and the function of the bone marrow.

Those cases following surgery for carcinoma of the stomach have not been considered.

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RECTAL CARCINOMA: TREATMENT AND PROGNOSIS

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It frequently has been said that carcinoma of the rectum is slow in development and progress. If this statement is correct in its entirety, it is necessary to conclude that our diagnostic acumen might be improved. A review of a large series of patients who came to The Mayo Clinic because of symptoms, which led to the diagnosis of carcinoma of the rectum, reveals that in over 50 per cent. of the cases the growths were inoperable, except for palliative procedures, such as colostomy, which were carried out in 20 per cent. of the cases. It seems possible that some of the inoperable growths could have been diagnosed earlier than they were.

Twenty per cent. of the group had had one or more operations for hemorrhoids, because of rectal bleeding. They had sought further investigation because of the constancy of symptoms. A comparatively small number had disregarded symptoms for a considerable time and the lesion was far advanced before they sought medical advice. A smaller group gave no history of rectal disorder until the process had become inoperable. It is known that carcinoma of the rectum is occasionally rapid in development and progress. In the majority of cases of rectal carcinoma, it may be said that symptoms are present for a considerable time before an accurate diagnosis is made. A review of several hundred cases of rectal carcinoma at the clinic reveals that the average duration of symptoms before the patient sought medical advice was about twelve months.

Symptoms. One mentions the symptoms of rectal cancer more or less apologetically. They are so well known to the average practitioner that their repetition seems elementary. However, so long as the accurate diagnosis is not made in many of these cases until rather late, it may be justifiable to mention briefly those signs which most commonly are present in a case of rectal carcinoma. Bleeding is unquestionably the most prominent and pronounced symptom, being present in about 85 per cent. of our cases at the clinic. The passage of blood per rectum may occur in other diseases, but at least it should suggest the possibility of malignancy. It is my opinion that more than 85 per cent. of patients who have carcinoma of the rectum have loss of blood per rectum, but this is not always offered as a symptom by the patient because it has been unnoticed. Deviation from normal intestinal habit, which is characterized by frequency of bowl movements and the passage of large amounts of blood-streaked mucus, and which often is referred to as colitis, warrants a suspicion of serious rectal disorder. Patients often refer to this type of intestinal irregularity as diarrhea, because of the tendency to frequent defecation, although only small amounts of material are passed. Constipation, which is the result of partial rectal obstruction, may be pronounced, and may alternate with the so-called diarrhea.

Pain. Provided the anus is not involved, the presence of pain in carcinoma of the rectum frequently suggests that the growth has extended beyond the intestinal wall, and perhaps has involved the surrounding structures. Some malignant growths that are situated at or near the anus may produce pain rather early on account of tenesmus.

Loss of weight, loss of strength, and presence of anemia. The presence of these signs, like pain, usually means that the lesion is more than a local affair. Anemia may be present occasionally, even though the lesion is local and operable, but in such instances a history of profuse bleeding is invariably offered by the patient; otherwise, carcinoma of the rectum, unlike carcinoma of the cecum, does not cause anemia unles metastasis has occurred. Similarly, loss of weight and loss of strength usually suggest metastasis of a more or less generalized character.

Diagnosis. In the presence of one or a combination of the preceding symptoms, it would seem that a digital examination of the rectum should be in order. Lesions of the rectum and the majority of those which are situated in the lower part of the sigmoid flexure are within reach of the index finger. While difficult to describe, the "feel" of a rectal carcinoma is unlike that of most benign lesions which occur in this region. The latter are usually more diffuse than the malignant lesions, and may not involve

Submitted for publication March 29, 1935.

the mucosa; definite carcinoma is usually single, discrete, rather firm, and feels not unlike cartilage does. Proctoscopic examination, in the hands of those who are experienced, reveals that which can be felt by digital examination, but in addition, a longer segment of intestine can be examined by direct view. A specimen of the lesion also may be taken for microscopic study. On such direct examination, carcinoma usually appears as a single lesion with an ulcerated center. It is to be remembered, particularly at this time, that amebic ulcers of the rectum may occur. Such a lesion occasionally is diagnosed as carcinoma. Buie has demonstrated that amebiasis was a complication in a case in which carcinoma of the rectum was diagnosed at biopsy. Cases of this nature may offer considerable difficulty in diagnosis. Therefore, while the importance of digital examination cannot be too strongly emphasized, the final analysis of the nature of a rectal lesion is by biopsy. The specimen should be taken at the time of proctoscopic examination and should be examined microscopically.

Treatment. When the diagnosis of carcinoma of the rectum has been made, the surgeon immediately should attempt to determine the type of treatment which is best suited to the individual patient. The surgical management of rectal carcinoma has been discussed for more than a hundred years; Lisfranc first advocated resection of the rectum in 1830. Prior to that time, treatment by cauterization and curettement had been carried out. Nearly half a century later, Marchand and others strongly advocated the perineal resection in cases of rectal carcinoma. The surgical treatment of rectal carcinoma has been for some time, and is now, alternately influenced, first, in favor of perineal excision, which is preceded by colostomy and secondly, by the abdominoperineal resection, which, too, necessitates a permanent colostomy. Which of these two procedures is preferable? While I am not convinced that I am capable of answering the question satisfactorily I am convinced that, in the majority of cases, perineal excision is the better operation. The majority of individuals who develop rectal carcinoma may be considered to be well beyond middle age. Consequently, a formidable surgical procedure should be considered seriously before it is employed. An abdominoperineal operation, in which the entire pelvic colon and rectum are removed, entails a morbidity that is considerably higher than that which follows the perineal operation, or posterior resection of the rectum. In the hands of experienced surgeons, the mortality of the abdominoperineal operation usually is no less than 12 per cent. whereas the latter operation can be done with a death rate of about 4 per cent. During the year 1933, posterior resection of the rectum was carried out in seventy-nine cases of carcinoma of the rectum at the clinic, with three deaths. Assuming that the mortality with abdominoperineal resection was higher than the mortality with perineal resection, would the prognosis for those who survived the former operation be more favorable than the prognosis for the seventy-six patients who survived the perineal procedure? If the question is answerable, the answer is dependent on many factors, the most important of which is perhaps the absence or presence of involvement of the lymph nodes. If involvement of the lymph nodes is present, will any surgical procedure effect permanent relief? This may be answered by saying that patients who had carcinoma of the rectum are alive and apparently well five to ten, and even twenty, years following removal of the rectum, even though some of them had involvement of the lymph nodes. Such cases are few and the malignancy has been demonstrated to be of comparatively low grade, not higher than grade 2, according to Broder's classification. Lockhart-Mummery expressed the belief that, if macroscopic involvement of the lymph nodes is present, the prognosis is almost invariably bad. The grade of malignancy and the absence or presence of involvement of the lymph nodes appear to be extremely important factors in the selection of the type of surgical treatment and also in determining the prognosis. The age and the general condition of the patient are to be considered next. The presence of rectal carcinoma plus another organic disease may alter appreciably the type of operation to be employed. In those cases in which a loop colostomy is made and subsequent posterior excision of the rectum is carried out, there occasionally develops a posterior or sacral sinus. This is frequently the result of a fistulous tract from the distal loop. I have found that if, at the time of resection,

the peritoneum is opened, the intestine amputated in the region of the rectosigmoid, the end of the latter inverted and replaced in the peritoneal cavity, and the peritoneum anchored to and covered over it, healing of the wound occurs very rapidly and usually without the development of a persistent sinus. I have employed this procedure in some fifty cases, without untoward consequence.

I may summarize this part of the consideration by saying that it is my opinion that the abdominoperineal operation is most suitable for those individuals who have rectal carcinoma, and who are in good general condition and are not aged. Rarely, do I employ this procedure in cases in which the patients are more than fifty-five years of age. It is, I think, quite possible that such a procedure might give a slightly higher percentage of cures, but the increased mortality is to be kept constantly in mind if such an operation is generally employed. Lockhart-Mummery recently reported 209 cases of carcinoma of the rectum in which perineal excision of the rectum was employed. One hundred of these patients survived five years, sixty-seven were alive seven years after operation, and fourteen were alive fifteen years or longer. He emphasized that the average age of his patients was sixty years. Obviously, a considerable number of those who survived operation died from causes other than malignancy. While Miles favored the abdominoperineal operation, his statistics revealed about the same percentage of survivals that Lockhart-Mummery reported from the posterior resection, or perineal operation. Segmental resection, i. e., re-establishing the continuity of the intestine, can be carried out in only a very select group of cases. It is a procedure which obviously is not as radical as the other types which have been mentioned; however, in cases in which the lesion is small, of polypoid character, and of low grade, it occasionally may be employed with satisfactory results. The segmental resection is frequently the choice of the patient because of the horror of colostomy that is necessary in the more radical procedures.

When the establishment of a colostomy is unavoidable, a little time spent in preparing the patient mentally is worth while. It is an interesting fact that those persons who have had colostomies for a number of years rarely complain of any difficulty whatsoever in managing the artificial anus. They soon learn how to manage their diet and, in most instances, the action of the intestine is so regulated in six months that defecation occurs only once each twenty-four hours. The elaborate paraphernalia, such as a girdle harness to which a huge receptacle is attached, is unnecessary and if used is only a constant reminder to the patient of his acquired anomaly. A small, washable, elastic belt is all that is necessary and many individuals who have undergone a colostomy use only a small, thin dressing which is fitted over the artificial anus, once the intestine has become trained.

Prognosis

The prognosis following removal of rectal carcinoma obviously depends on complete eradication of the local lesion and whether or not metastasis has occurred. The latter particularly cannot always be determined at the time of operation. There is still a great deal to be learned about the nature of metastasis. The fact is well established that the dissemination of carcinoma frequently takes place by way of the lymphatics. Some carcinomas obviously metastasize by the blood stream. The factors, which determine whether carcinoma metastasizes by the lymphatics or by the blood stream, are not understood. Clinical observation might lead to the conjecture that those malignant lesions of the colon and rectum, which produce the most marked obstruction, cause dissemination of secondary deposits to distant organs, such as the liver, more promptly than do those which produce only slight obstruction. In a case, which was seen recently, there was a small, napkin-ring carcinoma of the sigmoid flexure. The growth was freely movable and, although it had produced signs of intestinal obstruction, it was considered operable. There also was metastasis to the eye. Enucleation and microscopic examination of the eyeball revealed a metastatic adenocarcinoma which was not unlike the growth that was found in the sigmoid flexure. This unquestionably was an example of metastasis by the blood stream. Many other bizarre metastatic lesions have been observed. Herrmann and Higgins, in 1929, while carrying out experiments with dogs for the purpose of studying intestinal permeability, found that, if the lower portion of the sigmoid flexure of the

animal was completely obstructed, and if feedings that contained particles of graphite were administered by mouth, many particles of graphite would be found in the liver of those animals in which ulceration of the mucosa occurred at or near the site of obstruction. Those animals, in which ulceration of the mucosa did not occur, did not disclose any evidence that the graphite had been taken up by the portal circulation. These investigators offered the suggestion that ulcerating carcinomas, which produced obstruction, might metastasize in a similar fashion. It certainly must be kept in mind that carcinoma probably spreads to distant parts of the body by the blood stream more often than was previously supposed. Metastasis by either route apparently occurs earlier in cases in which the primary lesion has a high grade of malignancy than it does in cases in which the malignancy is grade 1 or 2. The local lesion may reach an enormous size, rendering it inoperable, and it may produce death without ever metastasizing. The prognosis naturally is dependent on whether or not metastasis has occurred, and whether or not metastasis has occurred is largely dependent on the grade of the lesion and the length of time it has been present.

Following removal of the rectum because of carcinoma, a great deal can be learned with regard to prognosis by a careful gross study of the specimen. Lockhart-Mummery has recently emphasized this. He classified rectal carcinoma grossly into three groups: 1. Those growths which have not progressed beyond the intestinal wall; 2. Those growths which have penetrated the intestinal wall but which have not yet involved the surrounding lymph nodes; and 3. Those growths which involve not only the intestinal wall but also the lymph nodes. Wilkie and his associates have carefully reviewed several specimens of rectal carcinoma, employing the classification of Lockhart-Mummery. They found that in a high percentage of cases in which the growths were classified in groups 1 and 2, the patients were alive many years after operation, whereas, in those cases in which the glands were involved, and in which the growths were classified in group 3, the patients usually succumbed within a comparatively short time after the operation, as a result of extension of the malignant process. The operative procedure, which was carried out in the majority of these cases, was of the perineal type.

Postoperative Complications and Preoperative Treatment

The complications which may follow operations for carcinoma of the rectum are, for the most part, the same as those which follow any abdominal operation. Among the most common of these complications are hemorrhage, peritonitis, intestinal obstruction, and pneumonia. I shall consider only peritonitis, as this has caused more deaths than have all the other complications combined. Once peritonitis has developed, its treatment is largely symptomatic and the result frequently is fatal. For the past six years, we have attempted at the clinic to decrease the incidence of generalized peritoneal infection, by a careful cooperative, preoperative regimen, which consists of placing the patient in the hospital four or five days prior to the operation. During this period, a diet, which is rich in carbohydrate and low in protein, is given. Such a diet includes fruit juices, candy, sherbets, bouillons, tea, coffee, jello and so forth. Mild saline laxatives and gentle rectal irrigations are administered. If obstruction is marked catharsis is not employed. Forty-eight to sixty hours before operation, a vaccine that is made from colon bacilli and streptococci, which are the organisms that commonly are found in the abdomen in fatal cases of peritonitis, is injected intraperitoneally. The reaction that follows is characterized by hyperpyrexia, which ranges from 102° to 103° F.; this usually subsides in twenty-four to thirty-six hours. Complete details of this maneuver have been published previously.

Since this method of preoperative treatment has been employed in cases of carcinoma of the rectum, the incidence of fatal peritonitis in these cases at the clinic has been decreased 66 per cent. In the occasional case in which death has been caused by postoperative peritonitis, the complication apparently has resulted from some type of streptococcus, the exact nature of which we have not yet been able to determine.

SUMMARY

In more than half of the cases of carcinoma of the rectum, the growth is so far advanced, when the patients first present themselves for treatment, that radical operation is impossible. At

least 20 per cent of the patients had been subjected elsewhere to hemorrhoidectomy before the malignant nature of the pathologic condition was diagnosed. Perineal excision, or posterior resection, probably is the operation of choice, because of the age and general condition of these patients. Abdominoperineal resection of the rectum is applicable in certain selected cases. The preoperative administration of a special diet, and the intraperitoneal injection of a special vaccine apparently have reduced markedly the mortality from postoperative peritonitis.

THE SCHICK CONTROL

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The value of the Schick test as a reliable means of distinction between immunity and susceptibility to diphtheria if properly interpreted and carefully performed with a toxin that had been accurately standardized, has been definitely established both clinically and experimentally.[1, 2, 3]

A proper Schick is considered one in which the amount of standardized toxin injected is accurately measured, the injection given intradermally, a control performed, and the reading interpreted in terms of the control. Some men consider that the control can be dispensed with and the pseudo-reactions ruled out by careful reading.[4]

In order to properly evaluate the Schick control, the following work was carried out:

A series of children of school age were Schick tested in the usual way on the left arm using 0.2 cc. Schick material as supplied by the Chicago Board of Health. A Schick control was performed on the right arm, and both were read one week later. The Schick was read first and its character (positive or negative) was determined before looking at the control. The control was then read and compared with the Schick and the final reading was interpreted in terms of the control. For that purpose we divided all our readings into six series:

Schick Neg., Control Neg.	57
Schick Pos., Control Neg.	38
Schick Pos.? Control Neg. hence Schick called Pos.	11
Schick Neg.? Control similar reaction, hence Schick called Neg.	14
Schick Pos? Control similar reaction, hence Schick called Neg.	14
Schick Neg.? Control absolutely clear, hence Schick called Pos.	1

Out of 135 readings 95 or 70 per cent. were definitely negative or positive. In 11 or 8 per cent. the Schick was slightly or questionably positive, and without the control we would have likewise called them positive. In 14 or 10 per cent. the Schick was questionably negative, and without the control we would have likewise called them negative. (These were the mild pseudoreactions.) Thus 120 or 89 per cent. of our readings would have been the same without the control.

However, 14 Schicks were questionably positive to such a degree that the control was the determining factor in calling them negative. (These were the strong pseudoreactions.) Thus, 10 per cent. of our readings would have been called positive when in reality they were negative.

Only one case was questionably negative, i.e., the Schick was so slightly faint that we called it negative? expecting the control to be similar, but in which case the control was absolutely negative and we changed the reading to a positive. This one reading we might have called positive hadn't we been slightly influenced by the knowledge that we had a control to look at for comparison.

Under this classification no combined reactions are recorded as they were listed as positives and their controls as negatives.

Summary: 10 per cent. of a series of 135 Schick readings in children of school age would have been called positive instead of negative if the Schick control hadn't been performed.

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EVALUATION OF DINITROPHENOL AS AN AID IN WEIGHT REDUCTION

James M. Strang and Frank A. Evans, Pittsburgh (*Journal A. M. A.*, June 1, 1935), observed six patients over periods varying from fifty-four to 115 days or a total of 437 days. These patients were all women in good health apart from the obesity and certain dependent disabilities such as varicose veins and painful knees. The six patients on admission weighed from 77.6 to 150.5 Kg. They lost a total of 99.4 Kg., or an average of 16.6 Kg. each. For 190 days of the study the patients received approximately "maintenance" diets, on which they lost 24.8 Kg. For 102 days, or 54

per cent of this period, they received an average daily dose of 250 mg. of dinitrophenol. In the remaining 247 days in which they were on "reduction" diets they lost 74.6 Kg. For ninety days, or 36 per cent of this reduction diet period, they received an average daily dose of 290 mg. of the drug. The average of the individual rates of weight loss were 130 Gm. per day and 290 Gm. per day, respectively, for these two periods. It was found that dinitrophenol in therapeutic doses produced an increase of oxygen consumption of approximately 20 per cent. Whether this disappearance of oxygen is a reflection of increased heat production or whether there is an alteration of the normal oxygen utilization due to the toxic action of the drug is not clear. It appears that there is a tendency of the body to store water under the influence of the drug. The drug readily produces skin reactions varying from moderate warmth and sweating to a toxic dermatitis. The question of a specific action on the sweat glands has been raised. The skin reactions do not parallel the amount of drug ingested or the level of increase of oxygen consumption. As the method of producing weight loss by increasing the rate of energy output, the drug leaves much to be desired theoretically. Practically, in the author's series of patients no consistent augmentative effect of the drug on the rate of true weight loss could be demonstrated in association with either the maintenance or the reduction diets employed. The influence of dinitrophenol on the negative energy balance is small in comparison to what can be secured by even moderate diets.

EMBOLISM: FOLLOWING INSTRUMENTATION AND INJECTION OF OIL INTO URINARY BLADDER

In spite of the fact that in their case there is a direct chain of circumstance proceeding from the instrumentation and oil injection through rather suggestive symptoms to the death of the patient, Jesse L. Carr and Clark M. Johnson, San Francisco (*Journal A. M. A.*, June 1, 1935), are still at a loss to explain why a small amount of oil entering the blood stream in this way should cause death when it is known that larger amounts can be injected intravenously without causing definite symptoms. As Lehman and Moore suggest, the entrance of fat into the blood stream cannot be definitely regarded as disease producing in a direct way, and they indicate that this fat entering in abnormal circumstances may not be the fat which causes the embolism. They suggest rather that such fat introduced artificially must in some way associate pathologically with the free neutral fat in the blood stream, which is there physiologically. In the authors' case there was no indication that the fat metabolism was upset or that the emboli seen in the various organs described are composed of other fat than that which was accidentally injected, although, of course, it was not possible to analyze these droplets for determination of their specific formulas. Nothing should be injected into the traumatized posterior urethra that cannot be safely injected intravenously.

Society Proceedings

CARROLL-JO DAVIESS COUNTIES

A joint meeting of the Medical Societies of Carroll and Jo Daviess Counties was held on Thursday evening, June 13, at the Gydeson Hotel in Savanna, Ill. Thirty physicians were in attendance. After a 6 o'clock dinner, the meeting was addressed by Dr. R. G. Scherer of Dubuque, Iowa, who gave an illustrated paper on Surgical Treatment of the Prostate. This paper was very well received and was discussed by Drs. Sword of Milledgeville, Weld of Rockford, Buford of Elizabeth, and Nix of Princeton.

The second paper of the evening was read by Dr. Anfin Egdahl of Rockford, on Obscure Fevers. This subject was very ably presented and was discussed by Mrs. Connelly of Galena, Logan of Galena, Buford of Elizabeth, and Egdahl of Rockford.

The secretaries of the two county societies led a brief discussion of the pending bill to license osteopaths under their own separate state board, and other matters pertaining to current medical economics.

L. B. Hussey, M. D., Sec.

Marriages

Andrew F. Bulfer, Chicago, to Miss Julia Sawyer of DuQuoin, Ill., April 24.

Clarence E. Quaife, Galesburg, Ill., to Miss Florence Hefte of Spokane, Wash., May 3.

Personals

Dr. James H. Hutton addressed the Peoria City Medical Society June 18, on "Recent Advances in Endocrine Diagnosis and Treatment."

At a meeting of the Peoria City Medical Society, June 4, Dr. Philip C. Jeans, Iowa City, discussed recent nutritional trends.

Dr. Clarence O. Sappington, Chicago, addressed the Central States Society of Industrial Medicine and Surgery at Rockford, May 21, on "Occupational Disease Hazards."

Dr. Ralph A. Kinsella, St. Louis, discussed "Occlusion of the Coronary Arteries" before the Adams County Medical Society in Quincy, May 15.

Speakers before the Chicago Society of Internal Medicine, May 27, included Dr. Anton J. Carlson on "The Problem of Control of the Endocrine Glands."

Dr. Abraham A. Low, Chicago, assistant state alienist, conducted a psychiatric clinic at the

Anna State Hospital, Anna, April 25, before a special meeting of the Union County Medical Society.

Dr. Maurice L. Blatt, Chicago, was the speaker at a meeting of the Whiteside County Medical Society, April 25, on "Convulsions in Children: Diagnosis and Treatment."

Dr. G. Henry Mundt, Chicago, addressed the Livingston County Medical Society, Pontiac, April 18, on "The Relation of Medicine to the Body Politic."

Dr. William H. G. Logan, Chicago, addressed a joint meeting of the Warren County medical and dental societies, April 25, on "Common Lesions and Abnormalities of the Face, Mouth and Jaws."

Drs. Aaron Arkin and Harry Culver, Chicago, addressed the Decatur Medical Society, April 23, on "Blood Dyscrasias" and "Traumatic Lesions of the Urinary Tract," respectively. Dr. Arkin conducted a clinic on heart disease during the day.

Dr. Sumner L. S. Koch, Chicago, spoke before the Fulton County Medical Society, April 24, on "Repairs of Defects of the Superficial Tissues Resulting from Burns and Injuries."

Surg. Gen. Robert U. Patterson, U. S. Army, Washington D. C., was the guest of honor and principal speaker at the annual dinner of the Medical Chapter of Cook County, Reserve Officers Association, May 24.

Dr Edward W. Alton Ochsner, professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, gave the sixth annual Stephen Walter Ranson Lecture, sponsored by Theta chapter of Phi Beta Pi Fraternity May 31, at Northwestern University Medical School. His subject was "Postoperative Treatment Based on Physiological Principles."

Dr. Ludvig Hektoen, director of the John McCormick Institute for Infectious Diseases and chairman of the Committee on Scientific Research of the American Medical Association, has been appointed a member of the board of trustees of Science Service, representing the National Research Council.

Disraeli Kobak, M. D., has been invited to Los Angeles to give a series of three addresses before the Pacific Physical Therapy Association and the Western Section of the American Congress of Physical Therapy on June 27. The subjects are "Short Wave Radiathermy," "Fever Therapy" and "Obliteration of Hemorrhoids by Galvanic Ionization."

News Notes

—Evidence that death from tuberculosis is decreasing in persons under 20 years of age is revealed in a survey recently completed by the state department of health. For this age group only fifteen deaths per hundred thousand population were charged against tuberculosis in 1934 as compared with a rate of 50 in 1920. The rate was 71 in 1934 for persons over 20 years of age. The recent study shows a marked reduction in mortality from tuberculosis among persons under 20 since 1920.

—The Rockefeller Foundation will continue for three more years its grant of $50,000 to the Division of Biological Sciences, University of Chicago, for research in biology. The foundation has been aiding this project since 1929 with annual grants of $30,000. Last year, however, the fund was increased to $50,000, the additional money to be used to cover the expenses of the sex research program which had been financed by the committee on research in problems of sex of the National Research Council.

—Puerperal infections occurring in maternal deaths in 1933 was the theme of the meeting of the maternal welfare committee of the Chicago Gynecological Society, May 21. Dr. Abraham F. Lash, assistant professor of obstetrics and gnecology, University of Illinois College of Medicine, presented the topic, and Dr. Julius E. Fleischner discussed it. The committee has been conducting a survey of maternal deaths in the city for three years, and plans to continue for at least one more year.

—The Chalmers Medal of the Royal Society of Tropical Medicine and Hygiene has been awarded to William H. Taliaferro, Ph. D., associate dean, Division of Biological Sciences, University of Chicago, and chairman of the department of hygiene and bacteriology, "in recognition of his valuable contributions to knowledge of the subject of animal immunity." The Chalmers Medal is granted every two years to a man under 45 years of age who has "contributed signally" to research in tropical medicine. Dr.

Taliaferro was recently appointed dean of the Division of Biological Sciences, succeeding Frank R. Lillie, Ph. D.

—Dr. Roy R. Grinker, associate professor of neurology, Graduate School of Medicine, Division of Biological Sciences, University of Chicago, will be in charge of the new department of psychiatry, the establishment of which was recently made possible by a grant of $168,000 from the Rockefeller Foundation. Dr. Grinker will return to the university, July 1, after two years abroad spent in research and study in psychiatry under a fellowship from the foundation. Research into the causes and cure of mental diseases will be carried on in the new division, which will be organized within the department of medicine. It will be opened July 1.

—The twenty-eighth annual meeting of the Illinois State Academy of Science was held at Bloomington, May 3-4. The following speakers, among others, participated in a program before the section on medicine and public health:

Dr. Joseph Howard Beard, health officer of the University of Illinois, Urbana, "Rickets—Its Cause, Effect and Prevention."

Dr. Clarence O. Sappington, consulting industrial hygienist, Chicago, "Significance of Occupational Diseases."

Fred W. Tanner Ph. D., head, department of bacteriology, University of Illinois, "Efforts to Control Quality of Foods in the United States."

Robert H. Gault, Ph. D., department of psychology, Northwestern University, Evanston, "Some Implications of Vibroactile Research."

—The Society of Illinois Bacteriologists was organized May 8, at a meeting in the University of Illinois College of Medicine, Chicago, with Fred W. Tanner, Ph. D., Urbana, professor of bacteriology, University of Illinois, as president; Dr. Frederick O. Tonney, director of research, Chicago Department of Health, vice president, and H. S Shaughnessy, Ph. D., director of laboratories, Illinois State Department of Public Health, Springfield, secretary. A board of eleven governors is to be selected, each representing a particular group of bacteriologists, with one elected at large. Five members will represent universities and other educational institutions. The new society will be the Illinois branch of the Society of American Bacteriologists.

—The Illinois Commission for Physically Handicapped Children was recently created under a legislative act to obtain and keep a register of physically handicapped children, coordinate all state activities that aim to benefit such children and promote voluntary work in this field. All persons under 21 years of age are regarded as children in the law that created the commission. Mr. Bruce Campbell, East St. Louis, is chairman of the commission, and other members appointed by the governor, include Dr. Edward L. Compere, Dr. Henry Bascom Thomas, Miss Edna Foley and Mr. Jacob Kepects, Chicago, and Mr. Harry Warner, Dixon. Mr. A. L. Bowen, state director of public welfare, Mr. John A. Wieland, state superintendent of public instruction and Dr Frank J. Jirka, state health director, are ex officio members of the commission.

Deaths

Henry William Dueringer, Oak Park, Ill.; Chicago Homeopathic Medical College, 1896; a Fellow, A. M. A.; served during the World War; at one time on the staffs of St. Joseph's and Sherman hospitals, Elgin; aged 66; died, May 20, of chronic myocarditis.

Sidney Harris Easton, Peoria, Ill.; Rush Medical College, Chicago, 1913; a Fellow A. M. A.; member of the Clinical Orthopedic Society; served during the World War; aged 44; died, May 8.

William Nelson Giles, Wataga, Ill.; Keokuk (Ia.) Medical College, 1898; member of the Illinois State Medical Society; at one time mayor of Wataga; aged 77; died, April 25, of diabetes mellitus and coronary thrombosis.

Mark Jampolis, Chicago; Northwestern University Medical School, Chicago, 1906; a Fellow A. M. A.; member of the American Academy of Pediatrics; associate in pediatrics at his alma mater; aged 53; on the staffs of the Sarah Morris Hospital for Children, the La Rabida Sanitarium and the Michael Reese Hospital, where he died, May 19, of mesenteric thrombosis.

Ernest Linwood Marston, Rock Island, Ill.; Rush Medical College, Chicago, 1888; formerly bank president; aged 74; died, April 2.

Daniel V. Ray, Rossville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; aged 69; died, April 9, of heart disease.

Thomas Elmer Roberts, Oak Park, Ill.; Chicago Homeopathic Medical College, 1888; a Fellow A. M. A.; Rush Medical College, Chicago, 1897; veteran of the Spanish-American War; aged 70; died suddenly, June 9, of heart disease while playing golf at El Paso, Texas.

Magnus Andrew Unseth, Chicago; Rush Medical College, Chicago, 1893; aged 66; died, May 12, of lobar pneumonia and lymphatic leukemia.

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—J. S. McLester: "Nutrition and Diet in Health and Disease."

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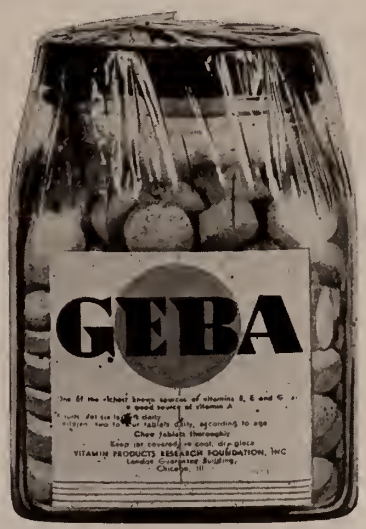
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Book Reviews

THE PRINCIPLES AND PRACTICE OF UROLOGY. By Frank Hinman, A. B., Leland Stanford Junior University; M. D., Johns Hopkins Medical School. Clinical Professor of Urology at the University of California Medical School. 1111 pages with 513 illustrations and 48 tables. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, $10.00 net.

This work covers in every detail the principles of foundation and practice of Urology. It includes everything necessary for the instruction of the medical student, covers the field of urology completely for the general practitioner, and should prove of interest and value as a reference book to the trained urologist. It is the last word on the subject of Urology.

A HANDBOOK OF ANESTHETICS. By J. Stuart Ross, M. D., and H. P. Fairlie, M. D. Fourth Edition. Baltimore. Wm. Wood & Company. 1935. Price $4.00.

This revision is built on Dr. Ross' original book. The chapter on local anesthesia has been entirely revised. The book has been brought up-to-date by the inclusion of new methods and new apparatus which seem to have established a definite claim to recognition.

THE BIOCHEMISTRY OF MEDICINE. By A. T. Cameron, M. A., and G. R. Gilmour, M. D. Second Edition. 31 illustrations. Baltimore. Wm. Wood & Company. 1935. Price $6.00.

In this work there has been little change in general arrangement and size of the volume. Many alterations have been made in every chapter and the work has been brought strictly up-to-date. The chapter on the Endocrine secretion has been largely rewritten, and there is a brief account given of the important discovery of anti-endocrine compounds. There is a brief description of those disorders of digestion which possess some biochemical interest.

AIDS TO SURGERY. By Cecil A. Joll, M. D., and Reginald C. B. Ledlie, M. B. Illustrated by H. H. Greenwood. Sixth Edition. Baltimore. Wm. Wood & Company. 1935. Price $2.75.

In this sixth edition the whole work has been rewritten and considerably enlarged in the effort to make it of use to both students and practitioners. The work has been brought up-to-date.

A TEXTBOOK OF BIOCHEMISTRY. Edited by Benjamin Harrow, Ph.D., Associate Professor of Chemistry, The City College, College of the City of New York and Carl P. Sherwin, M. D., Sc. D., Dr. P. H., LL. D. Member of the Staff of St. Vincent's Hospital and French Hospital, New York City. 797 pages with 52 illustrations. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, $6.00 net.

This work is intended for teachers and students of medicine, chemistry and allied branches, it is sufficiently inclusive to fill the needs of a diversified group. Authorities in the various fields of bio-chemistry have contributed to the chapters constituting this book, the book is therefore authoritative and up-to-date.

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Book Reviews

Clinical Management of Syphilis. By Alvin Russell Harnes, M. D. New York. The Macmillan Company. 1935. Price $1.50.

In this work the author has answered many questions that arise in the mind of the occasional syphilographer and has made available, in concise detail, practical information which will enable "Cure" or arrest of syphilis to be encompassed.

Economic Problems of Medicine. By A. C. Christie, M. D. New York. The Macmillan Company. 1935. Price $2.00.

In this work the author has discussed medical ethics in its relation to medical economics; economic aspects of medical education; economic aspects of private practice; the physician and the hospital; the relation of the physician to medical organization; the relation of the physician to the community; medical care under workmen's compensation laws; health insurance; industrial medicine; new methods of medical care under trial or recommended by medical organizations; health insurance as a solution to the problems of medical care; essential elements in a comprehensive plan for medical care.

The Harvey Lectures Delivered Under the Auspices of the Harvey Society of New York Under the Patronage of the New York Academy of Medicine. Series XXIX. Baltimore. The Williams and Wilkins Company. 1935. Price $4.00.

Failure of the Circulation. By Tinsley Randolph Harrison, M. D. Baltimore. The Williams Wilkins Company. 1935. Price $4.50.

This is an entirely new and distinctive work on circulatory disorders as observed in patients with diseases of the heart. While based on ten years of study and investigation in which the author has had the collaboration of many members of the medical faculty of Vanderbilt University, the practical clinical interpretations and applications are well defined, so that it is a good book for the general practitioner as well as the cardiologist, the internist and the physiologist.

League of Nations Quarterly Bulletin of the Health Organization. Vol. III, No. 4, December, 1934. Geneva. Annual Subscription $2.50. Also special number, January, 1935. This latter treats exclusively of biological standardization.

Emotions and Bodily Changes. By H. Flanders Dunbar, M. D. New York. Columbia University Press. 1935. Price $5.00.

This volume represents an attempt to bring together in some perspective the research contributions from various quarters, such as biology, psychology, including psychoanalysis, and clinical medicine which have combined to develop the new concepts in medicine. In Part I the development of theory is emphasized, in Part II clinical research and application, and in Part III deductions in terms of therapy and research possibilities. (The much vexed question of measurement of emotion is considered.)

Text-Book of Urology. By Daniel N. Eisendrath, M. D., and Harry C. Rolnick, M. D. 700 black and white illustrations and 11 in color. Third edition revised. Philadelphia & London. J. B. Lippincott Company. 1934. Price $10.00.

This work is intended for students and practitioners. The rapid advances in Urology during the past ten years has created the necessity for a work of this sort. The authors have presented the subject in the simplest possible manner complete and up to date.

Aids to Ophthalmology. By N. Bishop Harman. With 203 illustrations. Eighth edition. Baltimore. William Wood & Company. 1935. Price $1.25.

This whole book has undergone a vigorous correction and revision and so is brought up to date with new methods of investigation and treatment.

The Doctor's Bill. By Hugh Cabot, with an introduction by A. Lawrence Lowell. New York. Columbia University Press. 1935. Price $3.00.

In these days of economic stress the strife for security demands the cooperation of the public, the physician and the state. This book offers a much needed background of authentic information. It is not a plea for the imposition of any system. It does present, in language the layman as well as the doctor will appreciate, evidence of an economic and technical character, together with a logical consideration of the various plans which have already been proposed.

Clinical Laboratory Methods and Diagnosis. By R. B. H. Gradwohl, M. D., with 328 illustrations in the text and 24 color plates. St. Louis. The C. V. Mosby Company. 1935. Price $8.50.

This work is a text book on laboratory procedure with interpretation. It will prove a great help to the clinician, the laboratory worker, and the medical student to learn laboratory diagnosis.

Hospital Accountings and Statistics. A Manual for American hospitals, American Hospital Association, May, 1935. Authorized for publication by the trustees of the American Hospital Association upon recommendation of the Council on Community Relations and Administrative Practice.

Economic Problems of Medicine. By A. C. Christie, M. D. New York. The MacMillan Company. 1935. Price $2.00.

The subjects discussed are medical ethics in its relation to medical economics; economic aspects of medical education; economic aspects of private practice; the

physician and the hospital; the relation of the physician to medical organization; the relation of the physician to the community; medical care under workmen's compensation laws; health insurance; industrial medicine; new methods of medical care under trial or recommended by medical organizations; health insurance as a solution to the problems of medical care; essential elements in a comprehensive plan for medical care.

The Woman Asks the Doctor. By Emil Novak, M. D. Illustrated by Carl Clark. Baltimore. The Williams & Wilkins Company. 1935. Price $1.50.

Speaking with authority that cannot be questioned, Dr. Novak here "talks to many women as every physician must, in his consulting room, talk to one" about matters of well being that are essentially feminine.

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on medicine, surgery and all the specialties by leading members of the medical profession throughout the world. Edited by Louis Hamman, M. D. Vol. II. Forty-fifth series. 1935. Philadelphia, Montreal, London. J. B. Lippincott Company.

This work contains much that is of interest to the every-day practitioner and specialist. The article by Dr. Gibson on *prognosis in heart disease* will be of great interest to all physicians.

The article by Dr. LeRoy U. Gardner is an unusually outstanding one. Dr. Gardner has devoted many years to an experimental study of *pneumonokoniosis* (silicosis) and he is regarded everywhere as the leading authority on this subject. In this article he reviews the present state of our knowledge in regard to pneumonokoniosis and gathers together all of the known facts and the latest views regarding them.

Dr. Singer's article on the diagnosis of *perforated peptic ulcer* is of the greatest importance to practicing physicians. Everyone is familiar with the dramatic symptoms of sudden perforation of an ulcer, but there are circumstances under which this classical picture does not develop. It is extremely important that they should be in a position to recognize these less dramatic perforative episodes.

There is nothing more difficult for the physician to manage than the vague condition of *fatigue and nervousness in childhood.* In his article Dr. Seham reviews the subject in a very practical way and gives many important hints as to the mechanism of these disturbances and the proper methods for treating them.

Rupture of the aorta with the formation of a dissecting aneurysm is becoming an increasingly important clinical subject. Until recently the diagnosis of this condition was rarely made during life. However, during the past ten years more and more cases are being recognized. It is important to distinguish the condition particularly from coronary occlusion with which it is usually confused.

Drs. Bishop, Bishop and Trubek report an interesting case of *aneurysm of the abdominal aorta,* the symptoms of which simulated those of renal stone.

Dr. Hugh Josephs presents an interesting and important article on *hemolytic anemia.* There is a good deal of confusion about the proper classification of the anemias in childhood. The article is of importance not only to pediatricians because what is said about the hemolytic anemias of childhood is equally pertinent to the hemolytic anemias of adult life.

Dr. Wilkins reviews the question of *pyuria in childhood.* This subject becomes of increasing importance because only recently has it been fully appreciated how often these infections lead finally to pyelonephritis.

BURNS, PRODUCED BY RADIO SHORT WAVE AND ULTRA-SHORT WAVE THERAPY AND THEIR PREVENTION

David H. Kling, with a case report of a severe burn by George O. Berg, Los Angeles (*Journal A. M. A.,* June 1, 1935), points out that with the high frequencies generated by radio short wave and ultra-short wave apparatus it is not necessary to apply the current directly to the body through metal electrodes as in diathermy. It is sufficient to place the part to be treated in the electrical field between insulated plates. Heat is generated chiefly by displacement currents within the tissues, which act as a dielectric. This mode of application conveys the impression that the danger of burns is eliminated. The simplicity and safety of short wave therapy is played up in the sales campaign. Nothing is more erroneous. Burns have been observed clinically and they have been produced experimentally. Histories of six cases in which burns developed in the course of radio short wave and ultra-short wave therapy are given. Fully developed rats were used in experimental burns. On the basis of his observations and experimentation, the author believes that the surface effect, the size of the electrodes, perspiration and the acro-effect (the action of a short wave electrical field on pointed parts) seem to be responsible for the production of burns in the short wave electrical field. The widely circulated assumption that the use of condensor electrodes in short and ultra-short wave therapy excludes burns and simplifies the technic is a dangerous fallacy. In his six cases, three each of second and third degree burns, the first group produced slow healing blisters, the second total necrosis of skin. Burns were produced in rats, ranging from edema to gangrene and loss of ears, limbs and tails.

HEREDITARY HERMAPHRODITISM

J. Mark O'Farrell, Houston, Texas (*Journal A. M. A.,* June 1, 1935), discusses three cases of hermaphroditism that occurred in the same family stem. Two other children, both dead, are supposed to have been endowed with the same or similar sex anomalies; their cases are not reported for lack of authentication by personal examination. All these patients were of a single generation; no others, so far as ascertainable, were in the least degree hermaphroditic in the preceding or succeeding generations. Thirty-six offspring

of the brothers and sisters of these hermaphrodites have been checked over and found normal in all respects. In the three patients, abdominal exploration was done for determination of the dominant sex, and this was followed by such plastic operations as appeared advisable in the interest of conformatory relief. The most remarkable feature of the study is the prompt and very material response of nature to such apparently trivial stimuli in the righting of her previous errors, with consequent development of functions for such a long time in abeyance. This will be especially noted in the 24 year old subject who had never presented any symptoms of menstrual effort but who had a perfectly normal flow just twenty-five days after amputation of the penis. The disappearance of the facial hairs followed almost as promptly.

EXTENSIVE DIPHTHERITIC MEMBRANES REMOVED AND PHOTOGRAPHED

Myron G. Tull, Baltimore (*Journal A. M. A.*, June 1, 1935), calls attention to the fact that diphtheritic infection can extend beyond the tracheal bifurcation by reporting two fatal cases. The cases illustrate just how insidiously diphtheria may begin and what a firm hold it may get on its victim before the seriousness of the case is realized. In the first case the child went unattended because he appeared to go about his play and school activities normally. The parents thought he had "just a cold." In the second instance the gravity of the illness was minimized because the child seemed to improve under local treatment. The cases show how far reaching diphtheria can be. A roentgenogram of the first case reveals an almost perfect case of the bronchial tree of a 6-year old child. It extends from the larynx down past the bifurcation and on one side divides again for upper and lower lobes, and finally reaches the small sub-divisions of the lungs. Another roentgenogram shows a membrane beginning at the bifurcation and extending throughout the right bronchus, which is filled so completely that the right lung did not contain any air.

QUANTITATIVE STUDY OF VASOCONSTRICTION INDUCED BY SMOKING

R. Starr Lampson, Boston (*Journal A. M. A.*, June 1, 1935), determined the rate of peripheral blood flow in man by recording the changes in the hand volume. For the first half hour of each experiment, records were made to determine the normal blood flow of the subject. The patient then smoked, and further records were made during and after the period of smoking. The experiments have shown that smoking brings about a sudden marked reduction in the rate of the peripheral blood flow, an elevation of blood pressure, and an increase in heart rate. Haggard and Greenberg have recently observed that smoking also elevates the blood sugar level. These reactions, induced by smoking, appear to be manifestations of the response of the sympathetic nervous system to mild stimulation. In all the experiments, the blood flow reduction was greatest immediately after smoking. The degree and duration of the vasoconstriction could be correlated with the amount of nicotine absorbed. When a cigaret was inhaled, the rate of peripheral blood flow was at least halved and remained partially depressed for about sixty minutes. If the smoke was not inhaled, the vasoconstriction response was almost as great but the reaction lasted only fifteen minutes. "Denicotinized" cigarets produced a less marked and shorter response than ordinary cigarets. Pipe smoking gave rise to moderate vasoconstriction during puffing and to a marked reaction after inhaling the smoke. One experiment with a cigar demonstrated the vasoconstrictor response. Patients with thrombo-angiitis reacted to smoking in the same manner as the normal subjects. There is no evidence from the experiments that smoking is an etiologic factor in thrombo-angitis obliterans, but it seems clear that smoking must have a deleterious effect on patients who have already acquired the disease. If such a patient should smoke one cigaret an hour he would depress his peripheral circulation during the entire day. It is of the utmost importance that patients with thrombo-angiitis obliterans should forego the use of tobacco, as it adds unnecessary insult to the already existing injury by further increasing the peripheral circulatory insufficiency.

VERRUGA PERUANA (CARRION'S DISEASE): BASED ON PERSONAL EXPERIENCE IN PERU

According to Howard Fox, New York (*Journal A. M. A.*, March 23, 1935), the diseases formerly known as Oroya fever and verruga peruana have been definitely proved to be phases of a single process, conveniently called Carrion's disease. They are restricted to certain parts of Peru and present several unique features. The maligment type (Oroya fever) shows a profound anemia occuring more rapidly than in any condition except hemorrhage, and the eruptive stage (benign type) differs from all known skin diseases. The causative organism (Bartonella bacilliformis, Strong) has been demonstrated morphologically and by culture in the circulating blood, inner organs and eruptive (verrugous) lesions. Infection with one type is followed by immunity to the other, both in human and in experimental animal infections. Human and animal inoculations of one type may produce the other type of the disease. The insect vector (certain species of phlebotomus) has been discovered and possibly the existence of a plant reservoir. There is no specific treatment. Prophylaxis is all important and consists chiefly in remaining away from verruga zones from sundown to sunrise. According to Townsend, no one has ever been known to acquire the disease unless he has spent one or more nights in infected districts.

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Vol. 68, NO. 2 OAK PARK, ILL., AUGUST, 1935 $3.00 a Year

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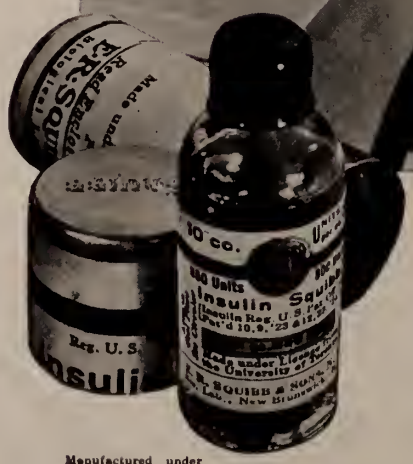
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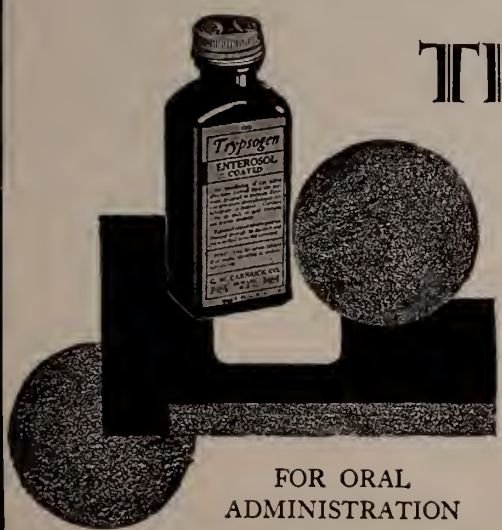
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Vitamin E	+ + +	+ +	—	—	+	+ +
Vitamin G	+ + +	+	—to +	+	+ + +	+ + +
Moisture	7.0	8.0	10.9	35.3	87.0	73.7
Protein	15.0	15.2	11.0	9.2	3.3	13.4
Fat	3.0	7.3	1.4	1.3	4.0	10.5
Carbohydrate	70.8	66.2	76.3	53.1	5.0	—
Calories per oz.	106	110	103	74	20	42
Alkaline Reaction	✔				✔	

Pablum is rich in minerals and vitamins. It is noteworthy that the calcium-phosphorus ratio of Pablum is 1.2:1 similar to that of average whole milk, which is considered the most favorable ratio for retention.

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OLCOTT AND MATTILL (1) recently admonished biochemical workers that all samples of wheat germ oil are not equally rich in vitamin E; some may lack it entirely. Experiments and clinical trials with vitamin E without adequate biological assays are worthless.

Drummond, Singer and Macwalter (2) point out that even laboratory extraction of wheat germ oil with ether may (*and frequently does*) cause inactivation. Cold pressing, while expensive, produces an active oil; but only a certified bioassay can insure the absolute presence of vitamin E.

Adamstone and Card (3) point out that the results of a dietary deficiency of vitamin E have been amply demonstrated for the mammal by numerous investigators, and that in the male. there is produced a *permanent incurable type of sterility involving actual destruction of the germinal elements of the testis.* The mammalian male imperatively requires vitamin E to prevent *irreparable* destruction of spermatogenetic structures.

"Evans (4) and also Mason (5) (6) (7) (8) have shown that a complete disintegration of the germinal elements takes place in which the germ cells and also the germinal epithelium are eventually destroyed. Kudrjaschov (9) confirmed these findings and also demonstrated that, although the male secondary sexual characteristics undergo regression at the same time that the germinal elements disintegrate, the interstitial cells apparently remain normal. He has thus shown the probability that the male sex hormone has its source in some of the developing germinal elements rather than in the interstitial cells of Leydig as is commonly believed. More recently, Mason (10) has found that the type of germ cell destruction produced by vitamin E deficiency is quite characteristic and readily distinguishable from that occurring as the result of inanition of a dietar deficiency in vitamin A."

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and vitamin B is to Beri-beri.
and vitamin C is to Scurvy.
and vitamin D is to Rickets.
and vitamin G is to Pellagra—
Vitamin E is to reproduction.

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Dosage: 30 to 40 grains daily for first 10 days, followed by 15 to 20 grains daily for remainder of treatment.

Soricin Capsules are available in boxes of 40 and 100 five grain capsules, and in boxes of 40 and 100 ten grain capsules.

Clinical sample and literature to physicians on request.

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HEAT STERILIZATION— A BASIC PRINCIPLE OF CANNING

● The Frenchman, Appert, is given credit for the first application of heat sterilization as a means of food preservation.

Competing for a prize of 12,000 francs offered by Napoleon for the most practical method of food preservation for blockaded France, Appert, in 1804, laid the foundations of the modern canning industry. So successful were his limited efforts that a contemporary food critic has stated that Appert's products recalled "the month of May in the heart of winter."

In the first English edition of his text (1) Appert propounds his conviction:

> "That the application of fire in a manner variously adapted to various substances, after having with the utmost care and as completely as possible, deprived them of all contact with the air, effects a perfect preservation of those same productions, with all their natural qualities."

Appert's findings were made empirically years before the true causes of food spoilage were known. Today, it is evident that the success of his procedure was due to heat destruction of spoilage micro-organisms, such as are associated with raw foods, and protection from subsequent contamination by such organisms.

The sterilization procedure, or the "process" as it is termed in the industry, is an integral part of commercial canning. Essentially, it involves the heat treatment of foods sealed in hermetic containers after proper preparation; the preparatory procedures accomplishing, among other things, the removal of most of the air from the can.

The time and temperature required for sterilization of a food are dependent upon many factors. The establishment of proper processes for canned foods is not a haphazard procedure; scientific methods constantly refined during the past two decades serve to determine the times and temperatures which must be used.

The findings of the physical chemist as to the rate of penetration of heat into the food are combined mathematically with data obtained by the bacteriologist on the thermal resistance of spoilage micro-organisms (2).

From this calculation are determined the proper processes necessary to destroy spore-forming spoilage bacteria whose thermal resistance are much greater than those of the pathogens.

Selected raw material, proper preparation, and scientifically determined methods of heat sterilization have combined to insure that canned foods as a class are among the most wholesome foods coming to the American table (3).

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) The Art of Preserving, M. Appert, Black, Parry and Kingsbury, London, 1811.

(2) Thermal Process Time for Canned Foods, C. O. Ball, Natl. Res. Council Bulletin, v. 7 No. 37, 1923

(3) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century, N. Y. 5th Ed. 1927.

This is the third in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.



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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 68 OAK PARK, ILL., August, 1935 NO. 2

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

Editorials

VITAMIN E DEFICIENCY AS A CAUSE OF STERILITY AND ABORTION

Lewis, in a discussion of the relation of vitamins to obstetrics[1] very interestingly points out a number of important reasons that make for general avitaminosis. Thus, he quotes Sherman[2] and Brown and Tisdall[3] as indicating that one-third of the average American diet consists of combinations, mainly from cereal sources, particularly flour: in the process of the manufacture of which, modern methods of refinement exclude practically all of the vitamins, which are discarded. This gives one-third of the diet essentially devoid of vitamins. Of the remaining two-thirds, meats form a fairly large percentage, which is a food source practically lacking in vitamins, owing to our selection of steaks, roasts and chops, or muscle meats, which are not the repository of vitamins in the animal body. Sugar is used extensively in the manufacture and preparation of food and its refinement likewise eliminates vitamins. Pasteurization of milk destroys over one-third of the vitamin B complex, according to Dutcher.[4] Plimmer and Plimmer,[5] in their book "Food, Health, Vitamins" indicate that from many countries data of all kinds show clearly that cancer and diabetes are increasing all over the world, and that at the same time there is a corresponding increase in the consumption of white cereals and of sugar. The Plimmers do not consider this direct evidence, but merely a suggestion which hints at a connection between a starch and sugar diet and cancer; and this takes on a new significance in the light of the experiments reported by Davidson, in which he appears to have shown that vitamin E prevents the development of tar carcinoma in experimental white mice.[6, 7]

In the world of animal nutrition, Ewing[8] comments on the startling situation involving the absence of vitamin E from many rations furnished livestock, and the tremendously high incidence of "slips," as abortion is designated in

animal husbandry, is now being traced to an unsuspected deficiency which frequently amounts to a complete absence of vitamin E.

A recent article on the importance of vitamin E disclosed vitamin E deficiency in 181 samples of breast milk collected from 187 mothers; and cow's milk is definitely known to be deficient in this reproductive factor.[9] Balfour and Talpade[10] have shown that in Southern India, where milled rice is the staple diet, nearly all of the females are in a state of avitaminosis, the incidence of premature births and stillbirths being three times greater than it is in Northern India, where *whole* wheat is the staple diet. Incidentally, the infant mortality is in about the same proportion and is thought to be due to the same cause.

Vogt-Moller[11] has written several articles giving practical results in the use of wheat germ and wheat germ oil, his latest contribution involving a series of 20 cases of habitual abortion treated with wheat germ oil. Seventeen of the patients produced living children. There were five cases of women with primary sterility, of which two produced living children on similar treatment.

Recently, at the Atlantic City Session of the Canadian and American Medical Associations, Dr. Earl Watson of the University of Western Ontario, reported on 65 human cases treated with wheat germ oil, and while he was successful occasionally in correcting primary sterility, his results were much more impressive in correcting chronic recurrent abortion. This work will soon appear in the *Journal of the Canadian Medical Association.*

There can be hardly any question of the effectiveness of vitamin E in the treatment of nutritional sterility and nutritional abortion in almost every variety of domestic mammal; and these findings have been quite definitely corroborated by Vogt-Moller and more recently, by Earl Watson, in the case of humans. What does not seem to be so obvious is the decided lack of vitamin E as distinguished from its alleged abundance. It is within the memory of every medical practitioner, that vitamin A was heralded as being exceedingly widespread, not only in the matter of variety of foodstuffs but also in the matter of its intensity. Nevertheless, hardly three years have elapsed since nutritionists everywhere acclaimed the widespread prevalence of vitamin A that the medical profession has resorted to the extremely promiscuous use of vitamin A concentrates. Very apparently, the alleged widespreadness of vitamin A either was unreal or insufficient to provide for the vitamin A demands of the American public. With human breast milk and cow's milk deficient in vitamin E, with denatured cereals, blanched sugar, Irish potatoes, and tinned vegetables, and the tinning is stressed because of the definitely destructive action of metals in solution on the vitamin E content of foods, it is far easier to show that America is undergoing an alimentary castration than it is to defend the vaccuous statement that vitamin E is probably not of clinical importance because of its alleged widespreadness in foods. The mistake rests with the nutritionists, who speak about natural foods when they discuss the presence of vitamin E, but appear to overlook that the public is fed very highly industrialized, "refined," vitamin-depleted and definitely denatured comestibles.

As Sure says,[12] "Obstetricians state that at least 6 to 8 per cent. of sterilities cannot be accounted for by diseased conditions in either father or mother. The diet of many people in this country is derived mainly from degerminated cereals, from which vitamin E has been removed in milling. Furthermore, that diet is not supplemented sufficiently by eggs and vegetables.' The burden of proof, according to Sure, that such cases of sterility will not respond to vitamin E administration, is up to the clinician.

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ALL ROME NEEDED WAS HEALTH INSURANCE!

"History repeats itself."

Those who are insistent that the burden of high taxes shall become still more engorged through compulsory and fake "health insurance schemes" should pause in their oratory and propaganda sufficiently long to read this extract from "The Conquest of Civilization" by James Henry Breasted, the noted archeologist, written at Armageddon, March 23, 1926.

In this volume, beginning on page 657, Mr. Breasted writes:

"We have seen good government, fine buildings, education and other evidences of civilization more widespread in the second century of peace (69-167 A. D.) than ever before. Nevertheless the great Roman Empire which we have been studying, although in a condition seemingly so favorable was suffering from an inner decay whose symptoms, at first hidden were becoming more and more evident. In the first place the decline of farming, so noticeable before the fall of the Republic (p563ff) had gone steadily on.

(Excerpt from page 564 reads, "The returned soldier . . . if he found his home and little farm uninjured and was willing to settle down and work its fields of old, he was soon aware that the hordes of slaves now cultivating the great plantations or *villas* around him were producing grain so cheaply that when he had sold his harvest he had not received enough for it to enable himself and his family to live. At the same time the markets of Italy were filled with cheap grain from Sicily, Africa, and Egypt. *With this imported grain often given away by the government,* he could not compete.

"Slowly he fell behind: he borrowed money and his debts increased. Forced to sell his little farm at last, he, too, wandered into Rome *where he found thousands upon thousands of his kind, homeless, embittered and DEPENDENT UPON THE STATE FOR FOOD.*"

Again: "he cursed the wealth which had done all this, and wandered up to the great city to look for free grain from the government, to enjoy the games and circuses and to increase the poor class already there."

Returning to page 658 we read in resumption of our opening paragraph:

"In spite of the heavy taxes imposed upon it, land had continued to pass over into the hands of the rich and powerful. The oriental system of confining land ownership to large domains held by the state and a few individuals had also a strong influence . . . Such a great estate was called a villa and the system of villa estates having destroyed the small farmers of Italy was now destroying them in the provinces . . . Unable to compete with the great villas, and finding the burdens of taxes unbearable, most of the small farmers gave up the struggle. Such a man would often enter upon an arrangement which made him the *colonus* of some wealthy villa owner. . . . While not actually slaves neither the coloni nor their children were free to leave or to go where they pleased nor had they any opportunity ever to better their condition nor to own their own lands. . . ."

And again: "Multitudes of the country people, unwilling to become coloni, forsook their fields and turned to the city for relief. . . . As a result the amount of land under cultivation decreased. . . . The scarcity was felt most severely in the great centers of population like Rome where prices had rapidly gone up. Our own generation, afflicted in the same way, is not the first to complain of 'the high cost of living.' . . . The country people who removed to Rome were only bringing about their own extermination as a class. The large families which country life favors were no longer reared, the numbers of marriages shrank and the population of the Empire shrank. . . . Debased by the life of the city, the former sturdy yeoman lost his independence in an eager scramble for a place in the waiting line of city poor, to *whom the government distributed free wine, grain and meat.* The time which should have been spent in bread-winning was worse than wasted among the cheering multitudes at the chariot races, bloody games and barbarous spectacles. Notwithstanding the fine families who moved to Rome from the provinces under the liberal emperors of the second century A. D., the city became a great hive of shiftless population supported by the state with money which the struggling agriculturist was supposed to provide."

Who can deny but that this picture of the latter days of Rome is foreign to current ken?

Yet even in those days the doctor was a king and not a pawn of the state and state taxation!

OUR ONE HUNDRED PER CENT EFFICIENT LEGISLATIVE SERVICE

Elsewhere in this issue is published the final report of the Legislative Committee of the Illinois State Medical Society. The report is complete and deserves your careful reading and digestion.

The legislative committee had an unusual number of measures to engage its attention during the session just closed. Nearly two thousand bills were introduced into the legislative hopper and more than one hundred of the proposed laws were of a positive or semi-positive medical nature. While special attention was centered on the strictly medical bills it was also necessary to study all of the two thousand proposed laws and ascertain whether or not they pertain to medical practice in its many ramifications. Every bill on the calendar had to be watched carefully from day to day and progress carefully noted.

Every measure of a controversial medical nature that was before the General Assembly was defeated and every measure of a medical nature approved by our legislative committee was passed.

Dr. John R. Neal, chairman of the legislative committee of the Illinois State Medical Society, was constantly on the job at Springfield watching all legislation. The chairman of our legislative committee reported day to day progress to the officers of county societies and key men throughout the state and the co-operation of the lay groups who did their work so effectively was the deciding factor in bringing about the defeat of vicious medical legislation at the 1935 session of the Illinois Legislature.

All of which goes to show that in union there is strength and that with a united medical profession nothing is impossible of achievement.

ORGANIZED MEDICINE IN ILLINOIS IS GIVING UNAPPROACHABLE LEGISLATIVE AND ECONOMIC SERVICE

Organized medicine, as vested in your county and state society provides the staunchest of economic and professional protection.

This unapproachable economic and legislative service to the thousands of physicians in Illinois is so conspicuous and far-reaching and so apparent that the well versed physician wonders what in the world justification there is on the part of certain physicians to claim that no economic service is offered or given by organized medicine in Illinois or elsewhere.

In the face of such false and misleading statements it is well to epitomize briefly some of the unconscious benefits that have accrued to the profession from the various officers and specific committees of the respective county medical societies and the Illinois State Medical Society and that have, so to speak, continued "to toil upwards in the night."

Organized medicine, as vested in your county and state society, provides the staunchest of economic and professional protection.

This is done at a minimum price. Organized medicine gives the members of its accredited societies, the maximum of efficient service, at a cost that is almost picayunish. This is quite in line with the ratio of skill and science versus financial return with which the profession serves the public. And all of this is in juxtaposition with what the various cults and isms levy upon the members of their numerous organizations. For instance chiropractors in Illinois pay annual dues of $120 per capita, merely as a starter, for the upkeep of their organization. Further, special assessments up to the sum of $500 are frequently the order of the day.

As a result of foresight and hard work, the organized profession of the state prevented the enactment of the notorious Sheppard-Towner Bill, ten years ago, in so far as the State of Illinois is concerned. At its recurrence for consideration eight years ago, this bill was again repelled as it never reached a vote. Again six years ago, so influential had the organized profession become that its sponsors held that "discretion was the better part of valor" and after due deliberation, did not re-introduce their bill.

There were only five states with sufficient foresight to turn down this nefarious legislation. Illinois can take pride in being one of the five. The five states are Connecticut, Illinois, Kansas, Maine and Massachusetts. Again ten years ago, in the Illinois General Assembly, nearly fifty bills of a detrimental medical nature were introduced. Not one was written on the Statute books. Again three years ago, in the Illinois

General Assembly, over one hundred bills of a detrimental medical nature were introduced. Not one was written on the Statute books.

No other state in the Union can show a better record. It stands for *pre-eminent organization service to membership.*

For twenty years the organized profession of the state has kept watch and ward over the interests of the profession. From the perfection of the Medical Practice Act in 1923 to the present day, continuous service has been given the physicians of the state of Illinois by their state and county organizations. During the past twenty years the fight has included the overthrow of some almost incredibly favorable laws for quacks and charlatans. No other state has been so successful in such prevention of vicious medical legislation. Illinois comes nearer than any other state in the Union of possessing one standard for entrance into the practice of medicine. Illinois is not afflicted with special boards, conditions and the like, by which the inept traffic in human life, nor are its ethical doctors humiliated by having to sit on the same boards with quacks, and representatives of vicious cults.

Referring again to the Medical Practice Act in Illinois, it is one of the most capable pieces of legislation of that nature in existence. Furthermore, the Supreme Court has upheld its validity, not once but *on four separate occasions.* This piece of legislation owes its place on the Statute books to the organized medical profession of Illinois. It is a masterpiece and it is the work of organized medicine in the state.

Advisability of a blanket act administered by one board including all branches of human treatment, is self-evident in view of the multiplicity of laws and examining boards in many states. When the proposed measure was pending, endless effort was made by drugless healers to liberalize the act. Through the untiring efforts of officers of the various medical societies of the state, the bill passed in essentially the same form as that in which it was offered.

Many members of the General Assembly are in the real estate business. According to law these must pay a renewal license fee annually. This group sought attachment of a $5.00 renewal fee on the Medical Practice Act. Vigorous opposition by organized medicine, hours of conference with the leaders in that session of the General Assembly enabled doctors to defeat the amendment, and save a great deal of money and needless red tape for the physicians. With about twelve thousand medical men in Illinois, defeat of this amendment approximates a saving of $60,000 annually to these physicians, or practically three quarters of a million dollars since the passage of the act in 1923.

In 1923 the Sheppard-Towner Bill was championed by a large lobby of women of education who waged an intensive campaign for the adoption of the provisions of the Federal Act by the State of Illinois. During the hearing on that bill in Congress in 1921 Illinois was the only state that sent a physician to Washington to oppose the passage of the Federal Maternity law. Despite the able protest of Dr. Charles E. Humiston, then president of the Illinois State Medical Society, who represented us, unfortunately the bill was passed. Every state in the union accepted the act except five, viz., Illinois, Maine, Massachusetts, Kansas and Connecticut. The protest made by Illinois at that time later bore results against federal subsidies of this sort. The Illinois State Medical Society has aided in defeating several hundred pernicious bills in the last six Illinois General Assemblies. Out of the twelve hundred bills introduced at the 1927 session, one hundred twenty-six, or over ten per cent. had either a direct or an indirect bearing on the medical men of our state. In 1925, after a bill curtailing public health departments in the necessary performance of their work had been literally "kissed" through the House and Senate and the governor urged to sign the measure by the League of Medical Freedom, call went out to representatives of the Illinois State Medical Society. After a conference with, and upon the advice of this committtee, the governor vetoed the bill.

Diversion of the tremendous post-bellum lay interest in the practice of medicine with an insistence for participation therein that has verged dangerously towards state medicine and the practice of the profession by lay-persons, has been a problem of organized medicine, with the life saving idea of turning such interest from a force pernicious to the public welfare into an active auxiliary of the recognized medical profession. The medium for dealing with this vital problem has been sought for and found in the educational committee of organized medicine. Through this committee, organized lay-bodies,

especially of women, either club women, or those who had felt the urge of concerted benevolence as vested in war auxiliary work are being shown that the best contribution they can make for public health and infant welfare is to work through organized medicine rather than through organized laymen. This problem, including as it does the tremendous amount of free service given through the endowed clinics of private foundations, touches upon the similar debauching of the province of ethical medicine through the federalization of over sixty per cent. of the hospitals of the country. Government ownership of so large a percentage of hospitalization facilities of the country is of a piece with the noose that has been slipped over the heads of the taxpayers and the profession by such legislation as the Sheppard-Towner bill, and all of which have served as officers for many years of the state society and its components.

THE PASSING OF C. ST. CLAIR DRAKE

Clarence St. Clair Drake, Jacksonville, Ill.; Chicago Homeopathic Medical College, 1891; Chairman of the Section on Preventive Medicine and Public Health of the American Medical Association, 1918-1919, and Member of the House of Delegates in 1920; member of the American Psychiatric Association; statistician for vital statistics, Chicago Health Department, 1895-1909; member, secretary and executive officer of the Illinois State Board of Health 1914-1917; director of public health for Illinois, 1917-1921; educational field director of the American Public Health Association, 1925-1929; since 1929 managing officer of the Jacksonville State Hospital; aged 65; died, June 2, of heart disease.

Because a man of purpose, honor and responsibility always passes on with his work unfinished, Dr. C. St. Clair Drake died far too soon and far too young. His years had been filled with service and the best monument he leaves behind him is the human salvage for whom, by the hundreds, he made living possible and profitable, as well as much of the organization of the Illinois Public Health Service in which C. St. Clair Drake was a potent, enthusiastic factor.

Dr. Drake died June 2, in Springfield, Ill. At the time of his death he was the managing officer of the Jacksonville State Hospital. This post he had held through two different political regimes, although the office was appointive—in itself a significant light upon the man's ability. He was a tried and true friend to many.

In May, 1914, Dr. Drake was appointed executive secretary of the State Board of Health, with which body he served until it was dissolved to make way for the State Department of Public Health in 1917. For this body Dr. Drake drew up the plan of organization. He so well forecasted the functions needed to fulfill the requirements of public health needs that not once since then has there been an actual basic change! Dr. Drake laid the foundation, a foundation so firm that to build upon it has been a joyous, a facile and a profitable task. During the World War, C. St. Clair Drake was State Health Director, meeting with competency and ability all perilous questions of camp sanitation and mass prophylaxis. Then, indeed, was shown in all its many facetedness C. St. Clair Drake's resourcefulness, ability, initiative, self-control, wisdom and keen, clear training. Verily he was a man among men, and, what is perhaps the greatest tribute that can be paid, even to a "man among men," a physician among physicians, dealing as he did with what will undoubtedly be the materia medica of the future—public prophylaxis!

C. St. Clair Drake—*requiescat in pace!*

STERILITY AND THE X-RAYS

Max Huhner, New York (*Journal A. M. A.*, May 18, 1935), warns that perhaps the protection usually given to the genital organs when x-rays are used is not adequate enough and that somewhere there might be a leakage which allows the rays to get at the testicle in spite of such protection. He reports four cases in which the patients had been perfectly fertile before and now have azoospermia, and two doubtful cases in which the patient came on account of sterility and, as far as could be determined, there was no other reason for the azoospermia except a previous application of the x-rays. It must be recognized that different testicles react differently to the influence of the x-rays, some being much more sensitive than others, so that what might be adequate protection in some cases would not be for others. An experienced dermatologist informed the author that he used a heavy piece of rubber for protection and that although he admitted that some of the x-rays might penetrate this rubber sufficiently to develop a film, not enough would penetrate to affect the testicles. However, in discussing the matter with an expert roentgen therapist, he was informed by him that an ordinary piece of rubber was not, in his opinion, adequate protection, and in order to obtain such protection it was necessary to add a lead plate as well as an aluminum plate to the device.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
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In spite of hot weather and vacations, the interest in this subject continues. As long as the practice of medicine is to continue a private enterprise, just so long must we continue to give thought to the attempts being made by reformers to change the same. They are no respecters of time of year or weather conditions.

With practically all the County Medical Societies taking a vacation from monthly meetings, the number of calls for speakers on this subject have been few. But we must continue our work as soon as the regular meetings start in the Autumn. The Committee do not feel that the message is being carried to the public as rapidly as it should. With the number of service and social clubs in the state, all of which are constantly on the lookout for speakers, we feel that a little more intensive work by the medical men, who are members of the clubs, would result in an opportunity being presented for one of our speakers to present our side of the subject. Any member who can so arrange a date should get in touch with Miss McArthur at the Chicago office and she will be able and glad to procure the speaker. Rotary, Kiwanis, and Lions clubs should offer a fine opportunity for this work.

The adjournment of the Legislature of the state of Illinois occurred on June 30, without the passage of any of the bills proposed and pressed by the cultists. This is the result of the efficient work of the Legislative Committee, under the Chairmanship of Dr. Neal, aided and abetted by the support of the medical profession of Illinois, particularly the key men of each County Society. In view of the organization of the cultists this year and the time, effort and necessarily money expended this should be quite encouraging not alone for the result accomplished but also as an example of what can be accomplished by cooperation of the medical profession under proper leadership.

The chief article of this column this month is by President Charles B. Reed. It gives a history of the fight the Illinois State Medical Society has made against Corporate Practice of Medicine and will in the opinion of the Committee be quite interesting and instructive particularly to those members who have not followed closely the fight of the Society against this menace. When you consider the duration of the fight and the time and money expended by the Society you will understand that results so favorable to organized medicine do not just happen, but are the result of unselfish service by some of its members aided by the proper expenditure of funds.

We hope to have in the next issue of the Journal an article by the Chairman of the Council, Dr. Neece. We trust that these articles will receive the attention they deserve.

E. S. Hamilton, M. D.,
Chairman.

CORPORATE PRACTICE

Charles B. Reed, M. D.

The practice of medicine by corporations is an extreme and illegal form of group practice. It is also wholly unethical because it interferes with the free choice of physicians, shifts and diffuses professional responsibility, disturbs the confidential relationship between the doctor and patient and makes the doctor an employe in a technical business under the control of an irresponsible body which is most often composed of laymen.

Medical schools and hospitals have always practiced medicine by using indigent patients for educational purposes on the presumption that permission for such usage is a form of compensation.

In principle this is unfair competition since it utilizes endowments and freedom from taxation and other sources of income to compete with the graduates of their own and other schools

who must obtain the furnishings and equipment by their own efforts.

In reality however no widespread objection can be made to the practice since only a relatively small number of schools and hospitals derive revenue from such sources. In the recent survey made by the Chicago Medical Society it was shown that in three of the large local schools only 2 per cent. of the clinical patients could have paid a private physician.

In the instances where schools and hospitals have taken pay or part pay patients for educational purposes as a means of increasing their income the general prestige of such institutions causes patients to patronize them in large numbers to the material disadvantage of the private practitioner.

This custom grew out of the initiation of a new policy of full time teachers on the ground that these teachers being removed from practice were to be given abundant time for teaching and research.

When these men are employed on salaries for an institution which is making a profit or income on their work their functions as teachers are minimized and their research interfered with.

Corporate practice is advocated ostensibly as a means of reducing the cost of medical care through the multiple increase in patients and the diminished overhead. The actual objective however even in the so-called "not for profit" corporations is to obtain financial returns from personal services rendered by hired members of a learned profession, or by the physicians who have incorporated their own organization.

Incorporation of a "not for profit" institution is of course mere charlatanry, a business pretense to avoid taxes, and like a "fire sale" advertisement serves to attract the unthinking, the credulous and the unwary. These ventures all make a profit and expect to, or they would not operate.

Business men, social theorists and salaried altruists who are not qualified by education or mentality to practice medicine or to understand even in part its varied responsibilities have set up a hue and cry against the high cost of medical care. This furor based on a minimum of truth arose partly from an inherent meddlesomeness and partly from a desire to enjoy the dignity and profit of corporate practice through wide publicity and the exploitation of hired physicians. This seemed to be the easier path, more profitable and more rational in accomplishment since the practice of medicine had been advanced by ambitious scientists to a point where most of the serious emergencies were under control and all diseases could be carefully differentiated by special study through elaborate and expensive instrumentation and laboratories.

The establishment of corporate enterprises met with considerable difficulty in many states. On the part of the patient a change must be made in his mental attitude. His attachment and friendly intercourse with a natural person whom he had learned to respect and trust must be transferred to a cold impersonal business relationship with a fictitious person called a corporation in which all professional responsibility is dissipated and lost.

A more serious objection arose from the legal side. Here licenses were necessary and the statutes forbid a person to practice without such a document. A corporation cannot pass an examination and therefore cannot obtain the legal right to do medical work. Unless the laws of a state specially sanction incorporation for the practice of medicine such a license cannot legally be given out. The law in Illinois has been carelessly or ignorantly violated in the past by the issue of such legal permits which as Judge McKinley ruled were "improperly granted."

A California Court—(Judge Blake)—held that the right to practice medicine attaches to the individual and cannot be made a subject of business sheltered under the cloak of a corporation having marketable shares descendable under the laws of inheritance.

The further statement was made that because a Workman's Compensation Act compelled all employers to furnish medical and surgical aid to the injured in the course of their employment such a condition did not offer any reason for a corporation to engage in the practice of medicine.

A corporation is a distinct entity. If a group of physicians or a medical society incorporates for the purpose of conducting a hospital, clinic or dispensary that body is still a *lay* corporation. This should be emphasized. Such an organization is not vested with a business or a professional character simply because it is formed by persons engaged in a special pursuit. It is a separate

personality which does not change. A mob is a mob whether composed of outlaws or missionaries. A corporation formed and conducted by women is not necessarily a female seminary.

Two further objections to corporate practice appear. The state would suffer a serious disadvantage in such a situation since it could not control a corporation as it does an individual under the Medical Practice Act in case of unprofessional conduct or moral turpitude. A corporation can be fined but not imprisoned.

Furthermore the corporate practice of medicine is against public policy for if such a procedure became an accepted custom it would be the opening wedge to commercialization in the practice of a learned profession and would not only permit but favor or stimulate the creeping in of many unethical and uncontrollable factors which the law has sought hitherto rigidly to exclude.

Medical men, possibly through ignorance of the law, have often formed similar organizations on a "not for profit" basis with such specious titles as clinics, leagues, centers, etc., which are, in many instances, merely camouflaged forms of commercialized medical practice. When physicians incorporate, the product is a lay corporation.

The doctors of Illinois have been through a prolonged and concrete experience with corporate practice which is highly educational.

Shortly after the war the Public Health Institute was incorporated for the wholesale treatment of venereal disease in Chicago. The Medical Society held numerous conferences with its managers to secure a change in form or some kind of accommodation. It was futile. Although incorporated as "not for profit" the institution piled up enormous profits and it was soon discovered that the medical practice act of that time was not comprehensive enough to meet and control this particular emergency.

In 1921 the Medical Society had a bill brought up in the legislature to prevent the practice of medicine by corporations. It was referred to the Committee on Public Health and Hygiene and at the hearing a well known lawyer who was on the Board of the Institute got enfevered by his own arguments and finally declared that "it did not make any difference to his organization whether they passed the bill because even if it became a law they would not pay any attention to it." The bill was tabled. Again in 1927 Senate Bill No. 291 was introduced by Senator Mason. It was tabled on third reading. In 1929 Senate Bill No. 231 was introduced by Senator Searcy of Springfield. Now the Executive Committee of the Chicago Association of Commerce obtruded a jaundiced hand under the lash of a member who was on the Board of the Institute. With the facile flexibility of ignorant mediocrity they issued a resolution condemning the Society and supporting corporate practice. This parvitude of perspective prevailed and the bill was smothered without mercy.

While passing through these experiences a number of high spirited men in the State Society resolved to obtain a new medical practice act which would afford the doctor as competent protection in his professional work as the lawyer enjoyed.

The services of Harry Eugene Kelly, a specialist in legal medicine, were enlisted and in 1923 the present practice act passed the legislature. This act has been persistently opposed by corporations, by lay promoters and the whole swarm of guerrilla bands who are constantly attacking the ethical practice of medicine. Different phases of its regulations have been up before the State Supreme Court at least half a dozen times but in every instance the act has been sustained and the opinion is now general that this particular piece of legislation is the best medical practice act on the statute books of any state.

In 1932 the Chicago Medical Society authorized a committee to bring suit under the provisions of the Act against a corporation which was practicing medicine in Chicago. Such a suit must be brought by the state's attorney in behalf of the people of Illinois and Harry Eugene Kelly was appointed Assistant State's Attorney for this purpose.

Mr. Kelly brought an action in qua warranto demanding that the corporation explain *why* it was "exercising powers not conferred by law." The trial was held and a judgment favorable to the society was handed down. The case was appealed to the Supreme Court but the defeated corporation was induced by some surreptitious influence to withdraw its appeal on the eve of a decision.

Again in 1934 a suit was brought by the Illinois State Medical Society against the United Medical Service, a corporation avowedly practic-

ing medicine in Chicago. Once more Mr. Kelly was engaged and he was appointed Assistant Attorney General for the prosecution of this case by Attorney General Kerner.

A quo warranto action was begun and in spite of the delays, continuances, procrastinations, garrulity of counsel, demurrages and every other device for defeating the public interests Mr. Kelly held firmly to his job and in 1935 a sweeping decision which upheld all the contentions of the Medical Societies was issued by Judge McKinley of the Superior Court of Cook County.

This document showed that the Society "was entitled to have judgment against the corporation, *ousting* the respondent from the franchise, occupation and business of holding itself out to the public as being engaged in the diagnosis or treatment of human ailments and from suggesting, recommending or prescribing any form of treatment for the palliation, relief or cure of physical or mental ailments of persons, with the intention of receiving therefor either directly or indirectly any fee, or compensation and from diagnosticating, or attempting to diagnosticate, operate upon, profess to heal, prescribe for, or otherwise treat any ailment, or supposed ailment of another and from maintaining an office for the examination or treatment of persons afflicted, or alleged or supposed to be afflicted, by any ailment, and from usurping, intruding itself into, or unlawfully holding or executing any such franchise or occupation or business either by or through the services of physicians and surgeons duly licensed and registered under the medical practice act and employed and paid by the respondent or otherwise."

Following this comprehensive and categorical decision the defeated interests tried to get a bill through the legislature which would empower corporations to practice medicine but the attempt was as unsuccessful as the Medical Society's previous efforts against such practice.

This review of the legal battle is not unfamiliar yet the threat of corporate practice in a number of its protean forms is still with us and it seems to the writer that our medical men as a whole do not appreciate fully the wide-spread influence of this legal fulmination and its fundamental significance to the doctors of Illinois.

The validation of the medical practice act by repeated court decisions and the ultimate elimination of corporate practice by the Supreme Court's endorsement of Judge McKinley's decision is and will be most momentous. Indeed it is so basically important that its progressive influence will remove and prevent a vast number of social and commercial impediments to the ethical practice of medicine by all the licentiates of present and future generations.

Correspondence

ILLINOIS COMES THROUGH WITH A PERFECT MEDICAL LEGISLATIVE RECORD

FINAL LEGISLATIVE BULLETIN

59th Illinois General Assembly, Adjourned June 29, 1935.

A remarkable forecast very pertinent to our times was made two thousand years ago. The speaker, a man of clear vision and great understanding, declared:

"For there shall arise false prophets, and shall shew great signs and wonders; insomuch that, if it were possible, they shall deceive the very elect."

And then he added:

"But know this, that if the good man of the house had known in what watch the thief would come, he would have watched, and would not have suffered his house to be broken up."

To medicine as well as to economics has come a great army of false prophets, the cults on the one hand and the magicians of economics on the other. Both groups attempted to break up the "house" of scientific medicine through destructive legislation offered for enactment in the recently adjourned General Assembly. The wonders of their wares were so skillfully displayed that the very leaders among the lawmakers were tempted to the brink of acceptance.

To the everlasting credit of the medical profession the Illinois State Medical Society had posted a "watch" in the form of your Council and Officers. At every moment during the session when an alarm was sounded the alert physicians of the State who feel deeply their public responsibility and who cherish the high standards and the honorable traditions of their calling responded so effectively that no pernicious law affecting the practice of scientific medicine was enacted. Only the alertness and the superb cooperation of a large majority of the physicians in every part of the State prevented letting down

the bars to osteopaths, chiropractors, corporation medicine and compulsory health insurance.

Circumstances this year made the work of your Legislative Committee particularly difficult. Economic conditions complicated by the complex problems brought on by modern mechanical inventions have created a popular mania for social reform of every description. Unrest is general. People are irritable, confused and bewildered. It is the harvest season for false prophets. Every sort of Utopian scheme, no matter how fantastic, that promises something for nothing or at little expense, gets a hearing and gathers a following. There has been created a great popular wave of sympathy and sentiment for the "under dog," the "little man," the "underpaid" employee, the abused healer. While nobody, least of all the physician, dispute the needs of the underprivileged and the desirability of improving their lot there is such a thing as irrationalism, the indulgence of which will only add poison to the medicine of reform.

Taking advantage of this situation the osteopaths and chiropractors introduced bills which were pushed forward with such skillful finesse that several reached "second reading" in the House while others passed the Senate, arrived at "third reading" in the House and were defeated at the last moment.

Exceptionally well versed in legislative matters the osteopaths worked feverishly during the closing days of the Legislature when anything is possible in the congestion that nearly always marks the last week of law making. When evidence of stiff opposition developed the osteopaths abandoned their bill in the House in favor of the Senate bill which, if passed, would have permitted osteopaths to do surgery despite the limited education they received in that subject. With united support this bill passed the Senate and was defeated on the last night of the session in the House where it appeared on the calendar on third reading. This experience illustrates the degree of alertness required of your Legislative Committee up until the gavel falls for sine die adjournment.

The structure of medical standards in Illinois is the result of more than one hundred years of work on the part of physicians and public spirited citizens who had the interests of the public and of a scientific profession at heart. It required fifty years to establish permanent legislation requiring the licensure of physicians and the setting up of qualifications deemed reasonable at that time. It required another half century to arrive at the present day standards which Heaven knows are none too high. These standards have been challenged constantly and will continue to be threatened throughout the years to come by those who try the back door, short-cut entrance to medicine and whose lack of training and temperament for this profession is equalled only by their desire to exploit the public. The new threat is from those infected with the virus of naziism and fascism who would regiment the medical profession under impracticable compulsory insurance schemes and the corporation control over medicine. Upon both fronts the medical profession must fight in the future in behalf of the public good.

Out of the 1,850 bills introduced in the General Assembly this year about 100 affected more or less directly the medical profession. Among these were a dozen highly undesirable measures aimed at reducing the standards of medical practice or at the regimentation of physicians. The record on these bills is as follows:

H. B. 425. Corporation medicine legalized. **Defeated.**

H. B. 937. Health insurance, compulsory. **Defeated.**

H. B. 692. Osteopaths, enabling them to do surgery and prescribe medicine. **Defeated.**

S. B. 238. Chiropractors, independent board. **Defeated.**

H. B. 780. Chiropractors, liberalized licensure. This bill had the personal support of the Mayor of Chicago. **Defeated.**

S. B. 363. Chiropodists, refused to accept amendments offered by the Illinois State Medical Society. **Defeated.**

S. B. 515. Osteopaths, would allow osteopaths to do surgery. **Defeated.**

S. B. 257. Physicians, annual license fee, would have legalized a nuisance tax annually against physicians. **Defeated.**

S. B. 210. Tax, 3 per cent. income, M. D.'s and others. **Defeated.**

A complete list of the bills relating to medicine and medical practice from various angles and the fate of each is appended. One bill, H. B. 1103, which would have given hospitals and practitioners for services rendered a first lien on funds available to persons injured through the fault of a third person, was favored by the medical profession but was lost.

To the State Department of Public Health was appropriated for the biennium $1,252,828. This provides only 8 cents per capita per year for the important functions of the State health service and makes Illinois rank thirtieth among States and territories in the per capita appropriations for this purpose. The interests of the public and the desire of organized medicine demand more adequate appropriations for public health service so that the application of preventive medicine in this State may meet more adequately the needs.

Credit for the successful functioning of your Legislative Committee is due in no small measure to the splendid and prompt cooperation of thousands of members of the Society, upon the steadfast and unfailing support of its officers and councillors, upon the timely assistance and advice generously given by officers of the American Medical Association, particularly by Dr. Woodward. For all of this your Legislative Committee is deeply appreciative. Your Committee is grateful also to the hundreds of fellow physicians and others who took the time and the pains to communicate their appreciation of the work undertaken and accomplished under unusual difficulties during the strenuous session of the General Assembly.

A copy of any of the bills listed may be had upon request.

MEASURES OF MEDICAL INTEREST

Cult

H. B. 780. Liberalize chiropractors' licensure. **Defeated.**

S. B. 238. Independent exam. board, chiropractors, etc. **Defeated.**

H. B. 692. Independent exam. boards, osteopaths. **Defeated.**

H. B. 781. Requires 4 years training chiropodist. **Defeated.**

S. B. 363. Requires 4 years training chiropodist. **Defeated.**

Medical Profession

H. B. 425. Corporation Medicine legalized. **Defeated.**

H. B. 937. Compulsory Health Insurance. **Defeated.**

S. B. 257. Annual Registration M. D.'s. **Defeated.**

S. B. 210. Three per cent. gross income tax, professions and occupations. **Defeated.**

H. B. 504. Changes language to conform with Civil Practice Act. **Passed.**

S. B. 515. Contained an objectionable osteopathic section. **Defeated.**

Appropriations

H. B. 855. Dept. Public Welfare, $44,113,318 **Passed.**

Ordinary and Contingent, $26,284,090; conveyance committed persons, $65,000; working fund, $1,500,000; U. S. veterans, $430,000; mothers' pensions, $1,000,000; permanent improvements, $15,000,000; criminal identification, $50,000.

S. B. 228. Blind Pensions, Emergency, $533,700. **Passed.**

S. B. 641. Old Age Pensions ($1 per day over 65), $6,000,000. **Passed.**

S. B. 643. Emergency Relief, $45,000,000. **Passed.**

H. B. 1. Emergency Relief (Deficiency), $9,000,000. **Passed.**

H. B. 834. Dept. Public Health, $1,252,828. **Passed.**

H. B. 835. Disabled veterans in hospital, $45,000. **Passed.**

H. B. 836. Supervising child boarding homes, $108,310. **Passed.**

H. B. 837. Blind prevention—trachoma, $45,000. **Passed.**

H. B. 1097. Blind pensions, $2,000,000. **Passed.**

H. B. 977. Widows with dependent children, $2,000,000. **Passed.**

H. B. 1098. Commission Phys. handicapped children, $7,500. **Passed.**

H. B. 879. Little Omnibus, $2,936,739. **Passed.**

Vocational education, $400,368; rehabilitation, $363,500; deaf, blind, etc., education, $574,200; deaf delinquent, etc., education (re-app.), $132 373; edu. crippled (re-appropriation), $114,018; schools, crippled, $800,000; boards of edu., blind, etc., $30,000; disabled veterans, $4,000; Spanish War veterans, $5,000; vets. foreign wars, $5,000; 33rd Division, $4,000; Grand Army Hall, $5,500; G. A. R., Illinois Dept., $2,500.

Licenses: The following licensing bills were acceptable to the Illinois State Medical Society except the ones that were defeated:

S. B. 510. Beauty culture, strengthens and facilitates regis. **Passed.**

S. B. 511. Chiropody, strengthens and facilitates regis. **Passed.**

S. B. 512. Dental surgery, strengthens and facilitates regis. **Passed.**

S. B. 513. Embalmers, strengthens and facilitates regis. **Passed.**

S. B. 515. Medical Practice Act, strengthens and facilitates regis. **Defeated.**

S. B. 516. Optometry, strengthens and facilitates regis. **Passed.**

S. B. 517. Nurses, strengthens and facilitates regis. **Passed.**

S. B. 518. Pharmacy, strengthens and facilitates regis. **Passed.**

S. B. 523. Veterinary med. and surg. examinations for, etc. **Passed.**

S. B. 639. Dental Surgery Professional fee fund." **Defeated.**

S. B. 519. Plumbers. **Defeated.**

S. B. 274. $120 tax on patent medicine vendors. **Defeated.**

S. B. 288. Beauty culture license regulation. **Passed.**

S. B. 473. Empowers cities to regulate barber shops, etc. **Passed.**

S. B. 509. Examining Committee for barbers. **Passed.**

H. B. 741. Regulates training and licensure of barbers. **Defeated.**

H. B. 863. Licensure of contraceptive vendors. **Defeated.**

H. B. 44. Licensure of narcotics (Uniform Narcotic Act). **Passed.**

H. B. 1085. Increased License Fees for M. D.'s. **Defeated.**

H. B. 559-591. Regulates Optometry. **Defeated.**

S. B. 289-533. Regulates Optometry. **Defeated.**

S. B. 257. Annual Reg. of M. D.'s and earmarked fees. **Defeated.**

H. B. 320. Revoke M. D. license for false health certificate. **Defeated.**

S. B. 452. Regulates licensure of plumbers. **Passed.**

Blindness

H. B. 573. Repeals blind pension tax as part of gen. levy. **Passed.**

H. B. 572. Requires special levy for blind pensions. **Passed.**

H. B. 146. Dog guides common carrier privileges. **Passed.**

S. B. 65-66-67-117-150-429-430 relate to blindness. **Defeated.**

H. B. 18-65-153-342 relate to blindness. **Defeated.**

Children

S. B. 475. Requires proportionate distribution of crippled child school fund. **Passed.**

H. B. 316. Provides for removal of teachers of crippled children. **Defeated.**

S. B. 591. Amends Child Labor Law. **Defeated.**

H. B. 1089. Amends Child Labor Law. **Defeated.**

H. B. 155. Prohibits word "illegitimate" in adoption records. **Defeated.**

Medical Examination

H. B. 319. Health Certificate for teachers. **Defeated.**

H. B. 191. For Ven. Dis. prior to marriage. **Defeated.**

H. B. 320. Revoke M. D. license for false certificate health. **Defeated.**

Milk

H. B. 730. Prohibits sale of filled milk. **Passed.**

S. B. 229. Facilitates State supervision over pasteurization. **Passed.**

H. B. 1148. Creates milk marketing board. **Defeated.**

Employment

S. B. 176. 1 day's rest in 7, exceptions. **Passed.**

S. B. 464. Repeals private employment agencies act. **Passed**

S. B. 157. 8 hour day for women, nurses excepted. **Defeated.**

H. B. 276. Provides percentage garnishment wages. **Defeated.**

H. B. 225. 8 hour day for women, nurses excepted. **Defeated.**

H. B. 704. Health regulations—metal industry. **Defeated.**

H. B. 92. 5 day week—certain occupations. **Defeated.**

H. B. 675. Forbids employment discrimination for hernia. **Defeated.**

Embalmers

H. B. 579. Regulates training and licensure. **Passed.**

H. B. 580. Extends present examining board to include funeral directors. **Defeated.**

S. B. 302. Required only 2 years apprenticeship for licensure. **Defeated.**

Hospitals

H. B. 814. Non-profit hospital corporation. **Passed.**

H. B. 109-236-1103. Liens for services to injured. **Defeated.**

H. B. 425. Corporations—medical practice act. **Defeated.**

S. B. 647. Maternity—city may construct. **Passed.**

S. B. 648.—Contagious diseases—city may erect. **Passed.**

H. B. 66. Authorized T. B. San. tax in cities 75,000-100,000. **Passed.**

Insurance

H. B. 64-75-217-264. Unemployment insurance. **Defeated.**

H. B. 937. Social health insurance. **Defeated.**

Illinois Emergency Relief

S. B. 644. Extends Emerg. Relief Com. to March 1, 1937. **Passed.**

H. B. 1143. Commission continued. **Defeated.**

H. B. 1144. Appropriation to administer. **Defeated.**

H. B. 106. Amends and adds to. **Defeated.**

S. B. 71. Abolishes Illinois Emergency Relief Com. **Defeated.**

Industrial Hygiene

H. B. 233. Workmen's compensation benefits increased. **Defeated.**

S. B. 297. Regulates spray painting. **Defeated.**

H. B. 634. Requires exhaust system, certain industries. **Defeated.**

Legislators

S. B. 136. Provides 2 additional Univ. Scholarships for each legislator. Vetoed.

Miscellaneous

S. B. 409. Creates State Bureau of Chemistry. **Defeated.**

S. B. 658. Creates Health and Safety Commission, Dept. Labor. **Defeated.**

S. B. 999. Creates Office Director of Relief. **Defeated.**

H. B. 428. Requires certif. title for firearms. **Defeated.**

H. B. 384. Would prohibit use chipped, cracked utensils. **Defeated.**

H. B. 1136. Requires M. D. in fire departments. **Defeated.**

S. B. 394. Repeals township pauper tax. **Passed.**

S. B. 406. Re-establishes county pauper tax. **Passed.**

Motor Vehicle

H. B. 30-31-47. Drivers' license. **Defeated.**

H. B. 577. Stop hitchhiking. **Defeated.**

H. B. 360. Requires safety glass in new autos after 1935. **Passed.**

H. B. 334. Requires rest rooms each 50 miles, motor lines. **Defeated.**

Pensions, Old Age

H. B. 940. Old age, $1 per day over 65. **Passed.**

S. B. 641. Old age $6,000,000 to administer H. B. 940. **Passed.**

H. B. 16-65-137-144-179-181-182-255-263-649-1142 and S. B. 191-196-604-635. All related to old age pensions. Some of these were fantastic in extreme. **Defeated.**

A total of 27 other bills related to pensions for various special groups, such as judges, firemen, public employees, etc. **Defeated.**

Radio

H. B. 143. Prohibits fraudulent advertising. **Passed.**

Tax

S. B. 207. Raises sales tax to 3 per cent. **Passed.**

S. B. 208. Raises gas tax to 4c per gallon. **Defeated.**

Sanitation

S. B. 73. Prohibits garbage dumps in cities. **Defeated.**

S. B. 74. Validates appropriation by sanitary districts. **Passed.**

S. B. 75. Broadens powers of Chicago San. Dist. **Passed.**

S. B. 109. Regulates Municipal swimming pools construction. **Passed.**

S. B. 596. Parks to grant water source sites to cities. **Passed.**

S. B. 597. Extends waterworks bonds to 25 instead of 20 years. **Passed.**

Numerous other bills. **Defeated.**

Sterilization

H. B. 97. Authorizes sterilization certain inmates of State institutions. **Defeated.**

Tuberculosis

H. B. 66. San. Tax in cities 75,000-100,000. **Passed.**

S. B. 574. Liberalizes tax levy for municipal sanitarium in cities over 200,000. **Passed.**

H. B. 1102. Spread new levy 1935 Municipal Sanitarium. **Passed.**

H. B. 562. Regulates payment on pure bred cattle T. B. reactors. **Passed.**

H. B. 176. Abolishes County area and veterinarian. **Defeated.**

S. B. 627. Amends county T. B. law. **Defeated.**

H. B. 334. Amends city sanitarium law. **Defeated.**

Workmen's Compensation Act

S. B. 159. Extends all rights to poor. **Passed.**

S. B. 178. Shifts hearings from Commission to County Courts. **Defeated.**

S. B. 195. Adds neck, face, hand injuries to compensable. **Passed.**

H. B. 706. Copy of M. D.'s report must go to injured employee. **Passed.**

H. B. 676. Regulates treatment of hernia. **Defeated.**

H. B. 237. Adds industrial disease to compensable list. **Defeated.**

S. B. 104. Creates state fund by employer tax for compensation. **Defeated.**

S. B. 659. Regulates payment of compensation. **Defeated.**

Drugs

H. B. 44. Regulates sale of Narcotics (Uniform Law). **Passed.**

H. B. 96. Imposes 10 per cent. tax patent medicine mfg. **Defeated.**

S. B. 274-408 and H. B. 672. Related to drugs and narcotics—all dropped in favor of H. B. 44.

Dogs

H. B. 332. Authorized killing under provocation. **Defeated.**

H. B. 344. Prohibits hunting dogs at large. **Defeated.**

H. B. 78. Provides payment for injury to dogs. **Defeated.**

H. B. 609. The Anti-Vivisection Bill. **Defeated.**

Respectfully submitted,
Thomas P. Foley, M. D.,
Mather Pfeiffenberger, M. D.,
John R. Neal, M. D.,
Legislative Committee.

A LAYMAN'S VIEW OF THE PROBLEMS THAT CONFRONT THE MEDICAL PROFESSION

Chicago, Illinois, July 27, 1935.

To the Editor:

Besides the age-old problems of finding cures for malignant diseases and illnesses which to the present day are termed as fatal or incurable, the medical profession is facing some acute problems in reference to medical practice and to future medical service for our citizens.

The potential members of the medical profession are confronted with the realization that the field is already crowded, and that the medical colleges are graduating doctors of medicine in ever-increasing numbers. The road to being a successful physician is long and expensive, and the final returns of material things are not great. Earning a living, even for the established physician, is frequently a matter of concern; it is, therefore, quite evident that the number of practicing physicians should be restricted to those who possess expertness, a high character and a vital personality. If medical colleges would resist the temptation to take more students merely to make money, and would accept the doctrine of "quality first," there would probably be a solution of the question as to the excessive numbers in the profession.[1]

The possibility of the enactment of an anti-vivisection law, prohibiting the use of lower animals for medical experimentation, concerns particularly the scientific practitioner and the research worker. The list of diseases that can now be controlled through knowledge gained by animal experimentation is long. Insulin for the treatment of diabetes may be mentioned as an example. Antivivisectionists, a minority group, seem to be guided by purely emotional personal reactions. The law which they propose would be detrimental and far-reaching, inasmuch as it would limit the development of knowledge that might affect the entire population.[2]

In the search for economic security, many of

the states and our federal government have, at times, tried to institute compulsory health insurance plans. Many years of observation and study of various European plans definitely demonstrates that compulsory health insurance has some very serious faults: It gives free medical service to those who have not honestly earned it, and thereby deprives the medical practitioner of his just rewards; it encourages an inferior quality of medical service for the citizens of a nation; it creates a future race of malingerers and office holders to live off the earnings of the self reliant. Morbidity and mortality statistics show that compulsory health insurance has a deleterious effect upon society and the medical profession as well. Free medical service may seem desirable in our present economic chaos, but a political plan for compulsory health insurance is not feasible; no social insurance laws can be devised that will cover those who are mentally or physically unfit to work. Not only does a medical practice by a political plan destroy the individualism of the medical practitioner, but it also destroys the integrity of the average citizen.[3]

1. Walters, Raymond: "Should the Number of Professional Students Be Restricted?" J. A. M. A., 114: 1051-57, 1935.
2. Reed C. I.: "Why Is An Antivivisectionist?" Ill. M. J., LXVII, 67: 135-142, 1935.
3. Ochsner, Edward H: "The Quest for Economic Security." Women, II: 5, 28, 29, 1935.

Ida Burkhalter, R. N., 454 Deming Place.

SENATOR SEARCY APPRECIATES THE CO-OPERATION OF THE ILLINOIS STATE MEDICAL SOCIETY

FIFTY-NINTH GENERAL ASSEMBLY STATE OF ILLINOIS
SENATE

July 3, 1925

Dr. J. R. Neal,
Legislative Representative,
Illinois State Medical Society,
Springfield, Illinois.

Dear Dr. Neal: The Fifty-ninth General Assembly has adjourned and I would like to take this opportunity of writing you a letter of appreciation.

The members of the Legislature at least those of us who like to be informed on all sides of a pending measure, have long since learned to depend on responsible Representatives to a marked degree for that information. An accredited representative, in my judgment, is as essential a part of legislation as the introduction of bills. I am a strong advocate of it and personally make free use of information and advice and analyses that representatives of the various organizations who are intersed in specific bills have to offer. By such a course we form our judgments. In that there were almost 1,900 bills introduced this last session, the need of outside help in the matter of digesting and understanding the various measures is obvious.

May I take this opportunity to tell you, and, through you, your esteemed Society, that, as one legislator, I appreciate the real courtesies extended by you to the legislators, during the session just closed as well as the previous ones over the great number of years that you have been chosen to represent the thousands of ethical physicians belonging to the Illinois State Medical Society?

I have heard your excellent cooperation favorably commented upon on many occasions and feel that you should know it. I want to congratulate the Illinois State Medical Society, and you personally, for the very fine dignified manner in which you carry on your legislative work.

With cordial regards, I am

Yours,
(Signed) EARL B. SEARCY.

UNION CATALOGUE OF MEDICAL LITERATURE IN CHICAGO NOW OPEN FOR REFERENCE

Two years ago the Institute of Medicine of Chicago made available an initial fund for the establishment of a union catalogue of medical literature in Chicago. The work of organization of this project was entrusted to a Committee on Coordination of Medical Libraries in Chicago, which had been appointed a year before. The first aim of the committee was to bring about a closer integration of effort among the major medico-biological libraries of the city (John Crerar Library, Universities of Chicago, Illinois, Northwestern, and Loyola, Rush Medical College) to obviate unnecessary duplication, triplication or even quadruplication of special literature, and divert the economies achieved to a fuller representation of the world's medical literature in Chicago. The second aim was the creation of a union card index centrally placed,

so that investigators in medical problems are able to locate the desired reference volumes with the least expenditure of time and energy. It is hoped that eventually the service of the catalogue will be made even more effective by the attachment of a permanent librarian and the availability of information by telephone.

The task of achieving such a union catalogue and its cost in effort and money are much greater than the original estimates indicated. The work toward its completion is still in progress. At the present time the cards representing the holdings in the libraries of the Colleges of Medicine and Dentistry of Northwestern University, of the Colleges of Medicine, Dentistry, and Pharmacy of the University of Illinois, most of the holdings in the bio-medical libraries of the University of Chicago, and much of those in the John Crerar Library and in the library of Rush Medical College are already inserted in the index, while none of the holdings in the library of the school of medicine of Loyola University are included as yet. But all of such work will be brought to completion as soon as possible. Every month these different medical libraries are sending in the cards of their new acquisitions, so that the catalogue is brought to date. It is hoped that in time the important holdings in the smaller medical libraries in the city will be represented in the catalogue. The final editing of this union index may not be accomplished before another two or three years have passed. Despite its present gaps and imperfections, the catalogue has already given valuable service to the medical librarians of the city and to investigators who were aware of its existence.

The union catalogue is now open to a wider medical public, which is invited to make use of it for reference and to cooperate in its further development and extension of service. It is located on the 12th floor, or floor of the medical reading rooms, in the John Crerar Library. Further information concerning it may be obtained from the medical librarians indicated above, or from the central office of the Institute of Medicine of Chicago, 629 S. Wood Street. Criticisms or suggestions should be sent to the latter.

June, 1935. Otto F. Kampmeier, M. D.,
Chairman, Committee on
Coordination of Medical
Libraries in Chicago.

WOMAN'S AUXILIARY MARKS PROGRESS

The Woman's Auxiliary to the Illinois State Medical Society completed its eighth year at the annual convention held May 21 to 23, 1935, in Rockford, Illinois. This was the largest meeting ever held, with an increase of 66 per cent. in attendance over last year.

We have an advisory Committee of five members, appointed by the President of the State Medical Society. Our committees correspond with those of the National Auxiliary.

Organization. This committee organized three new Counties and one branch of the Cook County Auxiliary. There are twelve counties ready to be organized, having just received permission from their County Medical Societies. The membership was increased by about 175 new members this year.

Public Relation. The Public Relation Committee felt we needed some type of authentic health literature that could be placed in all public reading rooms throughout the State, to counteract the magazines of quacks, cure-alls, faddists, and the *Christian Science Monitor.* This to be done without expense to the Auxiliary, as we did not have sufficient funds to pay for subscriptions. We procured the help of our State Health Department at Springfield, and by furnishing it with a mailing list sent in by each County, "The Illinois Health Messenger," a bi-monthly magazine, published by the State, has been placed in hundreds of reading rooms and libraries.

The booth at a Century of Progress was again maintained by the Cook County Auxiliary, its members acting as hostesses each day of the fair, and gave short lectures to every group interested in the progress of medicine during the past 100 years, in Illinois.

The Public Relation committee also furnished Women's Clubs with material for health programs, and kept such clubs informed as to when lectures on health problems would be given by members of the Medical Society.

Program. This committee furnished us with the finest program that has ever been given this Auxiliary. It contained suggestions, and material that could be used by every County, for both educational and social programs. It emphasized "Health Education," and in following this program frequent lectures were given by members of the State Medical Society to the Auxiliary members. Every doctor's wife must be able to answer intelligently and discuss with knowledge the subjects brought up by the laity. "Read your State Medical Journal." It also originated our own "Study Envelope," which was mailed each month to every County President, containing material on health problems of importance for that month. These were edited by the Educational Committee of the Illinois State Medical Society.

Legislative. The work of this committee is carried on entirely under the instructions given by the Legislative Committee of the State Medical Society. This year we were asked to prevent the introduction of a bill prohibiting vivisection. This was done by our members being intelligently informed on the value of

animal experimentation, and so informing our lay friends, and clubs. At the request of the committee for the Protection of Medical Research, the Cook County Auxiliary obtained thousands of signatures protesting against any change in the Arvey Ordinance, which would affect all research work in the United States. Other bills that we interested our group in with regard to Medical Practice were, 1. "The Practitioners' Lien Act," this bill would give physicians and hospitals first lien on funds collected on account of accidents that were cared for by them at the time of the accident. 2. A bill to legalize the practice of medicine by corporations. Not passed. 3. The Osteopathic bill wishing to set up an independant State examining board, and open a way to legalizing Osteopaths to practice surgery and all other forms of medicine. 4. Chiropractors have tried to introduce a similar bill. To date none of the bills of detrimental character to the Medical Profession have been passed.

Hygeia. The Chairman of *Hygeia* reported our quota was 100 subscriptions, and we turned in 223. Besides placing paid subscriptions in their Counties, several Auxiliaries collect the old magazines from their members, and place these in public reading rooms. May I quote from the Chairman's report, "My work in *Hygeia* has been most pleasurable, and hope this wonderful magazine will soon be in every American home."

Press and Publicity. This department has furnished splendid articles for the Illinois Medical Journal every month this year and reported on each State Board Meeting. Some of the outstanding articles were: "Greetings to the Illinois State Auxiliary," by Mrs. Robert W. Tomlinson, President of the Woman's Auxiliary to American Medical Society. "The Age of New Things," by Dr. Charles S. Skaggs, President Illinois State Medical Society, "Urgent Work for the Woman's Auxiliary," by Dr. John R. Neal, Chairman Legislative Committee, Illinois State Medical Society.

Finance. A uniform voucher system to be used by all Board Members when rendering bills was submitted by the finance committee, and adopted. Also several other important changes were made of which two were of importance. 1. The Finance chairman keep a monthly account of all budgets, and send a monthly statement to the President. 2. That each Board member send in monthly bills. For the first time this committee was able to present a budget for next year, which was accepted.

Archives. The Chairman of Archives submitted an outline to be followed by the County Auxiliaries for writing this year's history. This has been a great help to the presidents, and also keeps the reports uniform. For the first time we held a Memorial Service at our Annual Convention.

In closing, I would like to say that cooperation, unity of Auxiliary members, knowledge and sincere understanding will make strength with which we can stand behind our husbands and their difficult problems, and be of great assistance to them, and the Medical profession.

OUTLINE OF ACTIVITIES FOR THE COMING YEAR

1. Familiarize yourself with Medical Legislation program.
2. Educate the laity as to the value of Organized Medicine.
3. What effect State Medicine would have on public.
4. Aid in exposing the mis-representation carried on by cure-all companies, especially over the radio.
5. When the doctor's fee bill is criticized as being too high, kindly remind the people with reference to the amount of charity work the doctors give.
6. Stress Public Relations.
7. When Medical subjects are to be discussed in clubs and lay organizations see to it that a physician of merit is the speaker.
8. Place *Hygeia* in schools, high schools, libraries and county or district schools.
9. Place authorized Medical Books in your libraries. If you can't buy them maybe some of the doctors would donate a volume from their library. See that space is given to Medical books.
10. One big undertaking is the compiling of a list of Public reading rooms where we can place *Illinois Health Messenger.*
11. Use of films in schools and clubs furnished through Illinois State Health Department, free.
12. Use speakers Bureau of Illinois State.
13. Read the Journals, State and National.
14. Know both sides of the question.
15. The merits of vivisection.
16. What has anti-vivisection given the public in health measures?
17. Distribution of booklet being prepared by Economic Committee of State Society.
18. Know the doctors' wives in your community and create a friendly spirit among them.

Mrs. Lucius Cole,
President.

ILLINOIS HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of hospitals, sanatoriums and related institutions that are located in Illinois. It omits the names of hospitals which, after investigation, were not accepted. The inclusion of the name of any institution may be taken as an indication that evidence concerning irregular or unsafe practices in that institution has not come to the attention of the Council on Medical Education and Hospitals. The list is given in two sections: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include some general hospitals lacking certain essentials, nursing homes, school infirmaries, prison infirmaries, custodial and other institutions designed to give some medical, nursing or convalescent care in an ethical and acceptable manner, but not strictly hospitals. In the statistics the two classifications are consolidated. The words "No data supplied" following the name of

a hospital mean that no report was received although at least three requests were sent.

KEY TO SYMBOLS AND ABBREVIATIONS

* Approved for general internship, the fifth year in medicine, by the Council on Medical Education and Hospitals.

† Approved for certain residencies in specialties for graduates in medicine who have already had a general internship or its equivalent in private practice.

‡ School of nursing accredited by state board of nurse examiners.

§ Affiliated for nurse training on state accredited basis.

The column headed "Type of Service" tells what diseases or conditions are treated in each institution, as follows:

Ca	Cancer	ENT	Eye, ear, nose and throat
Card	Cardiac	Gen	General
Chil	Children	G&TB	General and tuberculosis
Chr	Chronic	Inc	Incurable
Conv	Convalescence and rest	Indus	Industrial
Drug	Drug and alcoholic	Iso	Isolation
Epil	Epileptic		
Inst	Institutional	Orth	Orthopedic
Mat	Maternity	SkCa	Skin and cancer
MatCh	Maternity and children	TB	Tuberculosis
MeDe	Mentally deficient	TbIs	Tuberculosis and isolation
Ment	Mental	TbOr	Tuberculosis and orthopedic
N&M	Nervous and mental	Ven	Venereal

The column headed "Control" indicates for each institution the ownership, control, or auspices under which it is conducted, as follows:

GOVERNMENTAL

Federal	State
Indian Affairs	City
United States Army	County
United States Navy	City-County
United States Public Health Service	
Veterans Administration Facility	

NONPROFIT ORGANIZATIONS	PROPRIETARY
Church	Individual
Fraternal	Partnership
Nonprofit association	Corporation (unrestricted as to profit)

ABBREVIATIONS

CyCo	City and county	Indiv	Individual
Corp	Corporation unrestricted as to profit	NPAssn	Nonprofit association
		Part	Partnership
Fed	Federal	USPHS	United States Public Health Service
Frat	Fraternal		
I A	Office of Indian Affairs, Department of the Interior	Vet	Veterans Administration Facility

Population of cities is based on the 1930 census of the United States Bureau of the Census. Consultation with the Bureau led to this decision. State population is based on estimates of the Bureau as of July 1934.

HOSPITALS AND SANATORIUMS

	Type of Service	Control	Beds, Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted
Alton, 30,151—Madison							
Alton State Hospital‡	Ment	State	1,537	..	..	1,483	401
St. Anthony's Infirmary and Sanitarium	Gen	Church	90	..	..	40	435
St. Joseph's Hospital‡	Gen	Church	75	15	175	33	2,142
Amboy, 1,972—Lee							
Amboy Public Hospital	Gen	Corp	12	3	23	4	147
Anna, 3,436—Union							
Anna State Hospital‡	Ment	State	2,047	..	..	2,002	679
Hale-Willard Memorial Hosp.	Gen	City	15	4	22	6	234
Annawan, 489—Henry							
J. M. Young Hospital	Gen	Indiv	21	2	5	2	142
Aurora, 46,589—Kane							
Copley Hospital‡	Gen	NPAssn	109	18	323	40	1,809
Kane County Spring Brook Sanitarium	TB	County	85	..	..	81	82
Mercyville Sanitarium	N&M	Church	150	..	..	124	183
St. Charles Hospital‡	Gen	Church	100	20	285	40	1,554
St. Joseph Mercy Hospital‡	Gen	Church	120	20	334	55	1,716
Batavia, 5,045—Kane							
Bellevue Place Sanitarium	N&M	Corp	36	..	..	23	11
Fox River Sanitarium	TB	NPAssn	50	..	..	45	49
Belleville, 28,425—St. Clair							
St. Elizabeth's Hospital	Gen	Church	110	15	230	51	1,981
Station Hospital	Gen	Army	35	..	..	10	215
Belvidere, 8,123—Boone							
Highland Hospital	Gen	Corp	25	10	65	..	387
St. Joseph's Hospital	Gen	Church	40	12	68	18	625
Benton, 8,219—Franklin							
Moore Hospital	Gen	Indiv	25	1	11	12	289
Berwyn, 47,027—Cook							
Berwyn Hospital	Gen	NPAssn	75	18	233	23	1,464
Bloomington, 30,930—McLean							
Mennonite Hospital‡	Gen	Church	78	11	166	42	1,269
St. Joseph Hospital‡	Gen	Church	250	20	297	135	3,014
Blue Island, 16,534—Cook							
St. Francis Hospital	Gen	Church	85	15	209	29	1,186
Breese, 1,957—Clinton							
St. Joseph Hospital	Gen	Church	25	3	13	10	334
Bushnell, 2,850—McDonough							
Elmgrove Sanatorium	TB	County	36	..	..	28	33
Cairo, 13,532—Alexander							
St. Mary's Hospital‡	Gen	Church	100	6	54	30	891
Canton, 11,718—Fulton							
Graham and Murphy Hospital‡	Gen	NPAssn	48	8	133	27	1,333
Carbondale, 7,528—Jackson							
Holden Memorial Hospital‡	Gen	Church	50	5	76	15	578
Carlinville, 4,144—Macoupin							
Macoupin Hospital	Gen	Indiv	20	6	52	10	489
Carmi, 2,932—White							
Carmi Hospital	Gen	Corp	10	2	3	3	135
Centralia, 12,583—Marion							
St. Mary's Hospital	Gen	Church	45	4	54	19	767
Champaign, 20,348—Champaign							
Burnham City Hospital‡	Gen	City	74	17	244	41	2,415
Charleston, 8,012—Coles							
M. A. Montgomery Memorial Sanatorium	Gen	NPAssn	21	4	21	8	301
Oakwood Hospital	Gen	Indiv	23	4	11	5	210
Chicago, 3,376,438—Cook							
Albert Merritt Billings Hospital (Medical and Surgical Department of University of Chicago Clinics)							
Alexian Brothers Hospital*‡	Gen	Church	256	..	..	156	3,014
American Hospital*‡	Gen	NPAssn	150	20	129	68	1,921
Auburn Park Hospital	Gen	Corp	100	24	180	24	1,651
Augustana Hospital*†‡	Gen	Church	350	25	418	144	4,393
Belmont Hospital‡	Gen	Corp	100	36	369	43	2,318
Bethany Home Hospital	Gen	Church	14	2	16	9	215
Bethany Sanit. and Hosp.‡	Gen	Church	34	16	147	16	823
Bobs Roberts Memorial Hospital for Children (Pediatric Department of University of Chicago Clinics)							
Burrows Hospital	Gen	Indiv	40	6	No data supplied		
Chicago Eye, Ear, Nose and Throat Hospital	ENT	Corp	75	..	..	4	841
Chicago Fresh Air Hospital	TB	NPAssn	100	..	..	21	87
Chicago Lying-in Hospital and Dispensary†§	Mat	NPAssn	162	160	2,676	97	3,742
Chicago Memorial Hospital*	Gen	NPAssn	88	20	294	45	1,859
Chicago Policlinic	(See Henrotin Hospital)						
Chicago State Hospital‡	Ment	State	4,118	4	3	4,451	1,644
Children's Memorial Hospt§	Chil	NPAssn	264	..	..	160	3,980
City of Chicago Municipal Tuberculosis Sanitarium†§	TB	City	1,206	..	..	1,126	1,725
Columbus Hospital*‡	Gen	Church	160	22	222	85	3,190
Cook County Children's Hospital	(Included in Cook County Hospital)						
Cook County Hospital†‡	Gen	County	3,300	222	4,576	2,756	73,086
Cook County Psychopathic Hospital†	N&M	County	185	..	..	..	..
Edgewater Hospital*	Gen	Corp	120	20	392	67	2,516
Englewood Hospital*‡	Gen	NPAssn	103	30	355	54	2,419
Evangelical Deaconess Hosp.‡	Gen	Church	66	20	115	24	699
Evangelical Hospital*‡	Gen	Church	200	60	862	93	4,259
Frances E. Willard Hospital*†	Gen	NPAssn	115	25	589	65	3,038
Franklin Boulevard Hospital†	Gen	Corp	60	20	188	44	1,654
Garfield Park Community Hospital*‡	Gen	NPAssn	150	32	445	63	3,175
Grant Hospital*‡	Gen	NPAssn	231	40	648	96	3,875
Henrotin Hospital‡	Gen	NPAssn	75	8	75	34	1,622
Holy Cross Hospital*	Gen	Church	85	24	508	64	2,624
Hospital of St. Anthony de Padua*‡	Gen	Church	200	40	686	107	3,530
Illinois Central Hospital*	Gen	Corp	255	21	355	120	3,456
Illinois Eye and Ear Infirm.†	ENT	State	200	..	..	178	5,272
Illinois Masonic Hospital*‡	Gen	Frat	159	25	274	65	2,376
Jackson Park Hospital*‡	Gen	NPAssn	225	33	456	61	3,040
John B. Murphy Hospital‡	Gen	Church	100	29	377	69	1,562
Lake View Hospital*‡	Gen	Corp	110	30	197	41	1,781
La Rabida Jackson Park Sanatorium	Card Ch	NPAssn	56	..	..	30	127
Lewis Memorial Maternity Hospital	Mat	Church	114	114	2,161	67	2,474
Lutheran Deaconess Home and Hospital*‡	Gen	Church	174	42	466	75	3,114
Lutheran Memorial Hosp.*‡	Gen	Church	175	36	327	52	1,991
Martha Washington Hospital	Gen	NPAssn	53	12	69	23	593
Mercy Hospital*‡	Gen	Church	360	30	323	156	4,770
Michael Reese Hospital*†‡	Gen	NPAssn	558	71	1,443	352	11,624
Misericordia Hospital and Home for Infants§	MatCh	Church	17	26	374	9	386
Mother Cabrini Memorial Hospital*‡	Gen	Church	150	18	255	62	3,073
Mt. Sinai Hospital*‡	Gen	NPAssn	160	44	864	101	4,526
Municipal Contagious Disease Hospital†§	'so	City	428	..	..	278	3,832

	Type of Service	Control	Beds, Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted
Nancy Adele McElwee Memorial and Gertrude Dunn Hicks Memorial Hospital (Orthopedic Department of University of Chicago Clinics)							
Nelson Morris Hospital.... (Included in Michael Reese Hosp.)							
North Avenue Hospital	Gen	Indiv	14	2	7	6	225
Norwegian-American Hosp*‡	Gen	NPAssn	148	32	526	70	2,844
Parkway Sanitarium	N&M	Corp	50	..	..	28	239
Passavant Memorial Hosp*†‡	Gen	NPAssn	300	48	433	96	3,542
Peoples Hospital	Gen	Indiv	54	4	9	9	486
Pinel Sanitarium	N&M	NPAssn	50	..	..	20	145
Post Graduate Hospital and Medical School	Gen	NPAssn	85	3	15	13	670
Presbyterian Hospital*†‡	Gen	Church	412	50	680	241	8,685
Provident Hospital (col.)*†‡	Gen	NPAssn	133	22	347	76	2,491
Ravenswood Hospital*‡	Gen	NPAssn	150	48	777	81	3,907
Research and Educational Hospital*†	Gen	State	357	25	376	348	6,010
Roseland Community Hosp*‡	Gen	Corp	101	32	502	53	2,832
St. Anne's Hospital*‡	Gen	Church	235	60	1,009	139	5,188
St. Bernard's Hospital*‡	Gen	Church	200	30	513	90	5,292
St. Elizabeth Hospital*‡	Gen	Church	263	40	716	155	3,746
St. Joseph Hospital*‡	Gen	Church	150	35	448	74	2,573
St. Luke's Hospital*†‡	Gen	NPAssn	627	32	587	236	9,009
St. Mary of Nazareth Hosp*‡	Gen	Church	162	38	538	129	3,418
Total hospitals in Illinois, 320; general, 219; general beds occupied, 58.9 per cent; population per general bed, 283.							
St. Vincent's Infant and Maternity Hospital§	MatCh	Church	41	10	112	11	124
Sarah Morris Hospital for Children (Included in Michael Reese Hosp.)							
Shriners Hospital for Crippled Children	Orth	Frat	60	..	..	60	200
South Chicago Community Hospital‡	Gen	NPAssn	69	15	147	18	936
South Shore Hospital‡	Gen	Corp	100	25	447	40	1,823
Surgical Institute for Crippled Children.... (Included in Research and Educational Hospital)							
Swedish Covenant Hospital*‡	Gen	Church	167	42	556	54	2,180
U. S. Marine Hospital*....	Gen	USPHS	186	..	..	158	1,195
University Hospital*‡	Gen	Corp	100	21	109	36	1,394
University of Chgo. Clinics*†	Gen	NPAssn	262	..	..	177	5,961
Washington Boulevard Hospital*‡	Gen	NPAssn	100	10	93	46	1,612
Washington Home .... (Included in Martha Washington Hosp.)							
Wellies Park Hospital	Gen	Corp	50	10	105	15	505
Wesley Memorial Hospital*‡	Gen	Church	229	21	442	106	3,370
West Side Hospital‡	Gen	Corp	142	19	197	54	2,017
Women and Children's Hosp.*	Gen	NPAssn	100	25	437	59	2,277
Woodlawn Hospital*	Gen	NPAssn	140	34	324	51	2,577
Chicago Heights, 22,321—Cook							
St James Hospital	Gen	Church	100	20	130	20	954
Clinton, 5,920—De Witt							
Dr. John Warner Hospital	Gen	City	25	4	35	8	300
Compton, 277—Lee							
Compton Hospital	Gen	Indiv	10	2	23	5	312
Danville, 36,765—Vermillion							
Lake View Hospital‡	Gen	NPAssn	158	12	121	54	1,577
St. Elizabeth Hospital‡	Gen	Church	150	18	240	61	2,235
Veterans Admin. Facility	Gen	Vet	562	..	..	435	1,563
Decatur, 57,510—Macon							
Decatur and Macon County Hospital‡	Gen	NPAssn	141	24	441	68	2,374
Macon County Tuberculosis Sanatorium†	TB	County	80	..	..	57	52
St. Mary's Hospital	Gen	Church	135	25	522	116	3,506
Wabash Employes' Hospital	Indus	NPAssn	85	..	..	56	1,200
De Kalb, 8,545—De Kalb							
De Kalb County Tuberculosis Sanatorium	TB	County	45	..	..	43	21
De Kalb Public Hospital	Gen	City	40	12	90	12	513
St. Mary's Hospital	Gen	Church	50	9	62	7	283
Des Plaines, 8,798—Cook							
Northwestern Hospital	Gen	Corp	16	6	32	3	..
Dixon, 9,908—Lee							
Dixon Public Hospital‡	Gen	NPAssn	60	11	127	27	820
DuQuoin, 7,593—Perry							
Marshall Browning Hospital	Gen	NPAssn	60	5	57	17	675
E. Moline, 10,107—Rock Island							
E. Moline State Hospital†‡	Ment	State	1,951	..	..	1,850	602
E. St. Louis, 74,347—St. Clair							
Christian Welfare Hospital‡	Gen	NPAssn	52	6	86	34	992
St. Mary's Hospital*‡	Gen	Church	260	35	377	105	3,661
Edwardsville, 6,235—Madison							
Madison County Tuberculosis Sanitarium	TB	County	90	..	..	79	132
Effinghsm, 4,978—Effingham							
St. Anthony's Hospital	Gen	Church	65	6	42	26	931
Elgin, 35,929—Kane							
Elgin State Hospital†‡	Ment	State	3,900	..	..	4,151	1,800
Resthaven Sanitarium	N&M	Indiv	75	..	..	40	127
St. Joseph's Hospital‡	Gen	Church	100	20	204	50	2,087
Sherman Hospital‡	Gen	NPAssn	110	20	310	74	3,054
Elmhurst, 14,055—Du Page							
Elmhurst Community Hospital	Gen	NPAssn	80	20	282	30	1,632
Evanston, 63,338—Cook							
Evanston Community Hospital (col.)	Gen	NPAssn	18	4	11	4	102
Evanston Hospital*†‡	Gen	NPAssn	235	36	745	102	5,112
St. Francis Hospital*‡	Gen	Church	320	50	654	103	5,649
Evergreen Park, 1,594—Cook							
Little Company of Mary Hospital*‡	Gen	Church	150	24	414	65	2,097
Ft. Sheridan, 602—Lake							
Station Hospital	Gen	Army	216	4	47	133	3,675
Freeport, 22,045—Stephenson							
Evangelical Deaconess Hosp‡	Gen	Church	86	16	166	32	1,120
St. Francis Hospital‡	Gen	Church	100	16	209	60	1,702
Galesburg, 28,830—Knox							
Galesburg, Cottage Hospital‡	Gen	NPAssn	82	18	184	33	1,094
St. Mary's Hospital	Gen	Church	120	16	182	32	1,263
Geneseo, 3,406—Henry							
J. C. Hammond City Hospital	Gen	City	25	5	31	7	310
Geneva, 4,607—Kane							
Community Hospital‡	Gen	NPAssn	67	18	175	28	849
Granite City, 25,130—Madison							
St. Elizabeth Hospital‡	Gen	Church	103	22	123	54	1,714
Harrisburg, 11,625—Saline							
Harrisburg Hospital	Gen	Corp	30	1	8	7	380
Lightner Hospital	Gen	Indiv	35	5	38	18	1,015
Harvard, 2,988—McHenry							
Harvard Community Hospital	Gen	Part	21	5	35	6	200
Harvey, 16,374—Cook							
Ingalls Memorial Hospital‡	Gen	NPAssn	95	25	351	37	1,817
Herrin, 9,708—Williamson							
Herrin Hospital	Gen	Part	40	5	39	17	584
Highland, 3,319—Madison							
St. Joseph's Hospital	Gen	Church	70	7	98	42	978
Highland Park, 12,203—Lake							
Highland Park Hospital	Gen	NPAssn	53	17	204	21	1,041
Hillsboro, 3,435—Montgomery							
Hillsboro Hospital	Gen	NPAssn	30	5	45	15	448
Hines,—Cook							
Veterans Admin. Facility	G&TB	Vet	1,750	..	..	1,642	5,549
Hinsdale, 6,923—Du Page							
Hinsdale Sanitarium and Hospital‡	Gen	NPAssn	105	5	134	40	1,060
Jacksonville, 17,747—Morgan							
Jacksonville State Hospital‡	Ment	State	3,345	..	..	3,283	779
Morgan County Tuberculosis Sanatorium	TB	County	40	..	..	21	41
Norbury Sanatorium	N&M	Corp	125	..	..	53	135
Our Savior's Hospital‡	Gen	Church	82	10	118	45	1,200
Passavant Memorial Hosp.‡	Gen	Church	73	12	87	31	844
Joliet, 42,993—Will							
St. Joseph's Hospital*‡	Gen	Church	192	36	530	145	3,793
Silver Cross Hospital‡	Gen	NPAssn	133	17	261	61	2,647
Will County Tuberculosis Sanatorium	TB	County	100	..	..	76	50
Kankakee, 20,620—Kankakee							
Kankakee State Hospital†‡	Ment	State	4,000	..	..	4,046	1,423
St. Mary Hospital‡	Gen	Church	114	12	145	47	1,418
Kenilworth, 2,501—Cook							
Kenilworth Sanitarium	N&M	Indiv	26	..	..	16	22
Kewanee, 17,093—Henry							
Kewanee Public Hospital‡	Gen	NPAssn	50	12	125	25	849
St. Francis Hospital‡	Gen	Church	56	11	109	40	700
La Harpe, 1,175—Hancock							
La Harpe Hospital	Gen	NPAssn	15	3	25	5	160
Lake Forest, 6,554—Lake							
Alice Home Hospital	Gen	NPAssn	42	8	93	15	694
La Salle, 13,149—La Salle							
St. Mary Hospital‡	Gen	Church	85	15	237	35	1,156
Libertyville, 3,791—Lake							
Condell Memorial Hospital	Gen	NPAssn	25	6	35	6	286
Lincoln, 12,855—Logan							
Evangelical Deaconess Hosp.‡	Gen	Church	53	8	79	34	966
St. Clara's Hospital	Gen	Church	63	9	44	25	875
Litchfield, 6,612—Montgomery							
St. Francis Hospital	Gen	Church	125	8	112	77	2,357
Mackinaw, 760—Tazewell							
Oak Knoll Sanatorium	TB	County	45	..	..	36	56
Macomb, 8,509—McDonough							
Marietta Phelps Hospital‡	Gen	Corp	40	6	51	16	590
St. Francis Hospital‡	Gen	Church	80	10	112	30	1,130
Manteno, 1,149—Kankakee							
Manteno State Hospital	Ment	State	1,201	..	..	1,196	118
Mattoon, 14,631—Coles							
Memorial Methodist Hospital‡	Gen	Church	43	8	56	31	1,000
Melrose Park, 10,741—Cook							
Westlake Hospital	Gen	Corp	85	16	157	16	822
Mendota, 4,008—La Salle							
Harris Hospital	Gen	Indiv	20	3	21	5	232
Moline, 32,236—Rock Island							
Lutheran Hospital‡	Gen	Church	135	36	321	50	1,400
Moline Public Hospital‡	Gen	City	111	22	289	42	1,901
Monmouth, 8,666—Warren							
Monmouth Hospital‡	Gen	City	33	10	111	23	682
Morris, 5,568—Grundy							
Morris Hospital	Gen	NPAssn	34	10	84	9	388
Mt. Vernon, 12,375—Jefferson							
Mt. Vernon Hospital	Gen	Indiv	20	..	20	11	450

	Type of Service	Control	Beds, Rated Capacity	Bassinets	Number of Births	Average Patients	Patients Admitted
Moweaqua, 1,478—Shelby							
Moweaqua Hospital	Gen	Indiv	25	8	19	11	90
Murphysboro, 8,182—Jackson							
St. Andrew's Hospital	Gen	Church	50	4	24	35	553
Naperville, 5,118—Du Paga							
Edward Sanatorium	TB	NPAssn	88	..	..	55	103
Normal, 6,768—McLean							
Brokaw Hospital‡	Gen	Church	85	15	124	44	1,788
Fairview Sanatorium	TB	County	50	..	..	24	12
North Chicago, 8,466—Laka							
Veterans Admin. Facility	Ment	Vet	1,135	..	..	1,046	187
Oak Forest, 50—Cook		County	1,054	..			
Cook County Infirmary	Gen				No data supplied		
Cook County Tuberculosis Hospital	TB	County	634	..	..	498	669
Oak Park, 63,982—Cook							
Oak Park Hospital*‡	Gen	Church	125	40	556	90	3,037
West Suburban Hospital*†‡	Gen	NPAssn	327	100	992	107	5,040
Olney, 6,140—Richland							
Olney Sanitarium‡	Gen	Corp	68	7	52	45	1,631
Ottawa, 15,094—La Salle							
Highland	TB	County	60	..	..	29	47
Ottawa Tuberculosis Sanat.	TB	Corp	115	..	..	84	144
Ryburn Memorial Hospital‡	Gen	City	58	12	201	36	1,269
Pana, 5,835—Christian							
Huber Memorial Hospital‡	Gan	Church	50	12	53	22	788
Paris, 8,781—Edgar							
Paris Hospital‡	Gen	Corp	40	6	22	32	712
Pekin, 16,129—Tazawall							
Pekin Public Hospital	Gen	NPAssn	40	8	138	26	1,073
Peoria, 104,969—Peoria							
John C. Proctor Hospital‡	Gen	NPAssn	100	18	181	51	1,873
Methodist Hospital of Central Illinois‡	Gen	Church	130	23	474	107	3,583
Michell Farm	N&M	Indiv	26	..	..	14	32
Peoria Municipal Tuberculosis Sanitarium	TB	City	93	..	..	92	116
Peoria Sanitarium	N&M	Indiv	25	..	..	10	60
Paoria Stata Hospital‡	Ment	State	2,771	..	..	2,712	846
St. Francis Hospital*‡	Gen	Church	300	30	619	183	4,752
Peru, 9,121—La Salle							
Peopias Hospital‡	Gen	NPAssn	50	10	125	26	1,088
Pontiac, 8,272—Livingston							
Livingston County Sanatorium	TB	County	36	..	..	36	45
St. James' Hospital	Gen	Church	40	12	152	14	920
Princton, 4,762—Bureau							
Julia Backley Perry Memorial Hospital	Gan	City	40	6	76	16	769
Quincy, 39,241—Adams							
Blessing Hospital‡	Gen	NPAssn	125	20	265	72	2,182
Hillcrest	TB	County	50	..	..	43	46
St. Mary Hospital*‡	Gen	Church	195	20	408	124	3,471
Rantoul, 1,555—Champaign							
Station Hospital	Gen	Army	50	1	5	11	392
Red Bud, 1,208—Randolph							
St. Clement's Hospital	Gen	Church	22	2	13	12	222
Robinson, 3,668—Crawford	Gen						
Robinson Hospital		Part	18	3	13	3	114
Rockford, 85,864—Winnebago							
Rockford Hospital‡	Gen	NPAssn	92	18	164	36	1,607
Rockford Municipal Tuberculosis Sanatorium†	TB	CyCo	110	..	..	90	101
St. Anthony's Hospital*‡	Gen	Church	180	35	412	80	2,809
Swedish-American Hospital‡	Gen	NPAssn	80	12	170	36	1,242
Wilgus Sanitarium	N&M	Indiv	35	..	..	12	120
Winnebago County Hospital	GenIso	County	90	6	122	66	1,690
Rock Island, 37,953—Rk. Island							
Rock Island County Tuberculosis Sanatorium	TB	County	76	..	..	58	74
St. Anthony's Hospital*‡	Gen	Church	150	18	160	62	1,645
Rosiclara, 1,794—Hardin							
Rosiclara Hospital	Gen	Indiv	10	2	10	3	102
Rushville, 2,388—Schuyler							
Culbertson Hospital	Gen	Indiv	25	5	8	4	168
St. Charlas, 5,377—Kana							
St. Charlas City Hospital	Gen	NPAssn	20	6	41	5	192
Sandwich, 2,611—Da Kalb							
Horatio N. Woodward Memorial Hospital	Gen	NPAssn	26	10	70	10	268
Savanna, 5,086—Carroll							
Savanna Public Hospital	Gen	City	14	5	26	4	144
Shelbyvilla, 3,491—Shelby							
Shalby County Memorial Hosp.	Gen	County	18	5	22	9	211
Springfiald, 71,864—Sangamon							
Palmer Sanatorium	TB	Corp	60	..	..	37	99
St. John's Hospital‡	Gen	Church	568	32	984	361	11,103
St. John's Sanitarium	TbOr	Church	325	..	No data supplied		
Springfield Hospitai‡	Gan	NPAssn	85	15	227	56	1,503
Spring Valley, 5,270—Bureau							
St. Margaret's Hospital‡	Gen	Church	68	7	96	36	1,093
Sterling, 10,012—Whiteside							
Public Hospital‡	Gen	City	51	12	176	24	937
Straator, 14,728—La Salle							
St. Mary's Hospital	Gen	Church	100	12	202	56	2,206
Subiette, 261—Lee							
Angear Maternity Hospital	Mat	Indiv	10	6	29	3	504
Sycamore, 4,021—Da Kalb							
Sycamora Municipal Hospital	Gen	City	23	7	51	11	357
Taylorville, 7,316—Christian							
St. Vincent Hospital‡	Gen	Church	55	11	125	36	1,342
Urbana, 13,060—Champaign							
Carla Memorial Hospital	Gen	Corp	25	6	39	15	708
Champaign County Hospital	Gen	County	55	8	84	15	706
Mercy Hospital‡	Gen	Church	38	12	183	37	1,842
Tha Outlook	TB	County	48	..	..	35	29
Vandalia, 4,342—Fayetta							
Mark Greer Hospital	Gen	Indiv	20	6	62	16	575
Waterman, 520—Da Kalb							
East Sida Hospital	Gen	Indiv	25	7	53	13	343
Watseka, 3,144—Iroquois							
Iroquois Hospitai‡	Gen	County	30	8	79	20	761
Waukegan, 33,499—Laka							
Lake County General Hospital	Gen	County	90	15	No data supplied		
St. Therese's Hospital‡	Gen	Church	135	16	314	44	2,296
Victory Memorial Hospital‡	Gen	NPAssn	76	14	212	24	1,022
Winfield, 445—Du Page							
Winfield Sanatorium	TB	NPAssn	120	..	..	89	126
Zaca Sanatorium	TB	Corp	50	..	..	20	60
Woodstock, 5,471—McHenry							
Woodstock Public Hospital	Gen	NPAssn	20	7	36	7	311
Zeigler, 3,816—Franklin							
Zeigler Hospital	Gen	NPAssn	18	2	5	3	92

RELATED INSTITUTIONS

Aledo, 2,203—Mercer							
Aledo Hospital	Gen	Indiv	10	2	14	3	113
Arrowsmith, 279—McLean							
L. M. Johnson Hospital	Gen	Indiv	10	2	7	2	46
Augusta, 1011—Hancock							
Augusta Hospital	Gen	NPAssn	12	3	No data supplied		
Chicago, 3,376,438—Cook							
Baverly Hills Rest Homa	Conv	Indiv	7	..	..	4	18
Chicago Homa for Convalescant Women and Children	Conv	NPAssn	53	..	..	51	476
Chicago Homa for Incurables	Inc	NPAssn	296	..	..	288	68
Ellis Avenua Rest Homa	Conv	Indiv	18	..	..	9	66
Housa of Correction Hospital	Gan	City	75	..	..	50	2,117
Illinois Steel Company Hosp.	Indus	NPAssn	25	..	..	11	48
Infirmary of Clearing Housa Illinois Emargency Relief	Gan	Stata	350	..	..	..	..
Isolation Hospital	SmPox	City	35	..	..	..	14
Lawranca Hall	Inst	Church	15	..	..	3	150
Marks Nathan Jawish Orphan Homo	Inst	NPAssn	23	..	..	4	1,533
Mathodist Episcopal Old People's Homa	Inst	Church	25	..	..	21	..
Mylan Sanitarium	N&M	Indiv.	15	..	..	5	35
St. Mary of Providenca Instituta	MeDa	Church	110	..	..	90	36
Salvation Army Women's Home and Hospital	Mat	Church	22	12	190	14	307
Washington and Jana Smith Homa	InstGen	NPAssn	21	..	..	9	103
Dixon, 9,908—Lea							
Dixon State Hospital‡	MeDe	Stata	3,323	10	11	3,102	545
Eldorado, 4,482—Salina							
Ferrell Hospital	Gen	Indiv	16	1	No data supplied		
Evanston, 63,338—Cook							
Tha Cradla	Chil	NPAssn	..	24	..	22	272
Grove Housa for Convalescents	Conv	NPAssn	38	..	..	17	162
Fairbury, 2,310—Livingston							
Fairbury Hospital	Gen	NPAssn	8	4	36	3	176
Flora, 4,393—Clay							
Flora Hospital	Gan	Indiv	7	2	20	4	208
Ganava, 4,607—Kane							
State Training Schl. for Girls	Inst	Stata	17	25	..	15	312
Godfrey, 201—Madison							
Beverly Farm	MeDa	Corp.	75	..	..	59	9
Henry, 1,658—Marshall							
Drs. Coggashall and Dysart Hospital	Gen	Part	7	4	24	3	145
Hinsdala, 6,923—Du Paga							
West Suburban Homa for Girls	Mat	NPAssn	20	16	31	6	34
Jacksonvilla, 17,747—Morgan							
Illinois School for the Blind Hospital	Inst	State	20	..	..	4	153
Illinois School for tha Deaf.	Inst	Stata	40	..	..	7	396
Lincoln, 12,855—Logan							
Lincoln State School and Colony‡	MaDe	State	3,777	6	17	3,452	367
Mattoon, 14,631—Coles							
Independent Ordar Odd Fellows Old Folks Homa Hosp.	Inst	Frat	54	..	..	40	120
Menard, 22—Randolph							
Illinois Security Hospital	Ment	State	525	..	..	506	65
Southern Illinois Panitentiary Hospital		State	36	..	..	18	499
Metropolis, 5,573—Massac	Inst						

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Original Articles

THE ROLE OF SURGERY IN THE DISEASES OF THE THYROID

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For thousands of years, goiter has been a familiar malady, an unsightly and frequently fatal diease and accepted as an inoperable affliction in communities where it prevailed. In the words of Halsted, in his operative story of goiter, "This conspicuous tumor of the neck was a perpetual challenge to the physician and a stigma as well to the surgeon."

Before the era of aseptic surgery the thyroid was regarded with an amount of respect which discouraged operative intervention, a fact which was manifested by the prohibition of operations on goiter by the French Academy of Medicine as late as 1850. This precaution was apparently justified by the dangers encountered on account of the abundant blood supply of the thyroid when altered by disease and the intimate relation of the gland to the trachea, as well as the fact that the operative mortality was about forty per cent. Principally through the work of Billroth, Kocher, Halsted and deQuervain, it is more than fifty years since operations on goiters have acquired a position among the accepted procedures of surgery. The operative mortality has now been reduced to less than one per cent.

While thyroidectomy is a procedure which today can be carried out technically by any competent operator without danger of mishap, still it is an operation which many surgeons even now undertake with considerable apprehension. To deal intelligently with the problem, one cannot expect surgical treatment alone to effect cures. Problems beyond the immediate operative mortality enter into the question. While technical complications, such as injury to the recurrent laryngeal nerves and parathyroid bodies must be avoided, the patient must also have a good looking scar and a good functional result. A preexisting hypo or hyperthyroidism may be present to render the surgeon's task more difficult. Sufficient thyroid tissue must be left for future requirements, but, at the same time, sufficient tissue must be removed to guard against future recurrence. Derangement of function of various systems by the secretions of an abnormal thyroid gland introduce a problem which is more indefinite, although just as important as the surgical anatomy of the thyroid region or the technique of thyroidectomy. Because of these varied problems, the entire field of medicine with all its specialties is concerned with one or more phases of these complications. There is no branch of surgery where good judgment is more essential than in the surgery of the thyroid gland.

The indications for the operative treatment of goiter, besides that of hyperfunction, are the removal of adenomata to improve the appearance of the neck, the relief of symptoms of tracheal compression caused by simple nodular goiters, as well as the prophylaxis and cure of malignancy and other pathological changes. Consideration should be given to the esthetic aspect of the disease raised by the patient since a goiter which is unsightly is nearly always clinical as well, very often involving the trachea and large blood vessels of the neck with harmful effects on the patient. Changes in size or contour of the thyroid gland causing cosmetic disturbances or pressure on the recurrent laryngeal nerves or those resulting in substernal and intrathoracic projections of gland tissue are, as a rule, readily diagnosed and their treatment is just as readily indicated. In this type of case roentgenographic as well as laryngoscopic examination are of considerable importance in the preoperative management and in the surgical treatment of the disease. It has been estimated that in all instances in which the goiter has produced symptoms of a mechanical nature, damage results to one or the other of the vocal cords in about five per cent. of cases.

There are some conditions, namely, chronic thyroiditis of Riedel's struma type, tuberculosis and cases in which there has been a sudden hemorrhage into a benign adenoma, which are often confused with malignant tumors of the thyroid. A correct preoperative diagnosis is most important in the surgical management of these cases. In the differential diagnosis, the most noteworthy, although rare, is the so-called Riedel's struma, or woody thyroiditis. The etiology of this disease has been variously ascribed to tuberculosis, syphilis, and other types of chronic

Oration on Surgery, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 22, 1935.

inflammation, but no convincing evidence of any of these factors has been presented. In this disease the gland is so hard that its consistence has been described as stony or iron-like. However, its contour is smooth and rounded, the normal shape of the gland is retained, there is no hoarseness and there is little or no fixation of the gland to surrounding structures. There is no evidence of extension to regional nodes and distant organs. Malignant tumors are usually nodular and unilateral, they frequently metastasize early and soon involve the recurrent laryngeal nerves so, that hoarseness and dyspnea are relatively common symptoms. The indications for surgical removal of the gland affected by woody thyroiditis consist mainly of pressure symptoms such as dyspnea and dysphagia. When surgery is undertaken for this disease it should, if possible, be limited to partial resection of the gland, since, as a rule, very little functioning gland tissue is left and myxedema may result. Late in the disease myxedema is common but this may be controlled satisfactorily by the oral administration of thyroid gland extract.

Tuberculosis of the thyroid, while extremely rare and of little clinical importance, is occasionally confused with malignancy. It has been noted that tuberculosis occurs frequently in association with increased functional activity of the gland already involved with hyperthyroidism. Whether the hypertrophic gland is rendered more susceptible to invasion by the bacillus of tuberculosis, or whether the infection stimulates the parenchyma to abnormal activity resulting in hyperthyroidism has not been determined. The disease is most frequeutly a part of a generalized tuberculosis or secondary to tuberculous infection elsewhere in the body. The result may either be a frank abscess formation or a chronically inflamed fibrotic mass. Microscopically the latter type shows tubercles intra- or interfollicularly. The surgical treatment is incision of the abscess or lobectomy, depending upon the condition encountered, and the prognosis is excellent.

In most cases of hemorrhage into a thyroid adenoma the history gives a correct diagnosis, whether the patient had previously noted a goiter or not, the thyroid suddenly increases definitely in size. This swelling, of a rapid onset, is associated with marked local tenderness and occasionally by symptoms of choking and pressure in the neck. Because the tumor following hemorrhage usually tends to subside over a period of a few days or weeks, it is readily differentiated from malignancy.

Malignant tumors of the thyroid are not extremely rare since the statistical studies show that from one to three per cent. of all nodular growths in this gland are carcinoma. The greatest hope of cure of malignant lesions of the thyroid lies in the prophylactic removal of adenomas. The usually quoted text-book symptoms of cancer of the thyroid are really those of the end-stages of the disease. A rapidly growing goiter with irregular lobulation distorting the usual symmetrical shape of the thyroid gland is rarely present until the condition is hopeless.

According to most investigators malignancy of the thyroid arises in about ninety per cent. of the cases in a preexisting nodular goiter, usually in an individual in the 5th or 6th decade. As long as the growth remains inside the capsule, no symptoms are produced, so the exact time at which the malignancy begins cannot be determined. The goiterous enlargement is occasionally the only symptom of which the patient is aware. Pressure on the recurrent laryngeal nerve or direct extension of the growth into the trachea results in hoarseness and cough, and, if the esophagus is encroached upon, dysphagia is present. Hoarseness is a significant symptom since it usually means that the tumor has broken through the capsule and that the nerve is actually invaded or pressed upon. In non-malignant tumors of the neck, involvement of the recurrent laryngeal nerve is very rare.

The question of the possibility of carcinomatous lesions of the thyroid producing hyperthyroidism has not been completely settled although Pemberton states that this condition practically never takes place. When there is enlargement of the gland with hyperthyroidism, malignancy is rare, although in Pemberton's series, eighty-seven per cent. of the cases of malignancy were associated with benign nodules elsewhere in the gland. It is these benign adenomas which are most likely the cause of the hyperthyrodism. In many instances operations are undertaken for supposedly benign adenomatous goiters only to find, by immediate microscopic examination or recurrence of the lesion at a later date, that the neoplastic change had already taken place. Need-

less to say, it is in these cases that are not diagnosed clinically that the best results may be expected. In early cases in which the carcinoma is confined within the capsule, removal of all of the growth without rupture of the capsule is sufficient. After malignancy has been diagnosed, the treatment of choice is radical resection, and, if this is impossible, irradiation alone or combined with surgical removal is strongly indicated. In inoperable cases, supplementary treatment consisting of checkerboarding the region of the thyroid gland and applying radium in a mild erythema dose is usually necessary. High voltage roentgen ray treatment may also be used in addition.

In summary, it may be stated that surgery alone in this condition is usually not justifiable even if the malignant lesion is entirely removed, although, in many instances, radical resection has proved satisfactory. The latter is especially true of the papillary adeno-carcinoma which grow slowly, and tend to remain encapsulated for a long time. In the more malignant types, radiotherapy certainly offers additional protection against the extension of the disease. Tracheotomy is frequently necessary, especially in the late stages of the disease, as a palliative measure.

The prognosis of carcinoma of the thyroid has been shown by Pemberton and Fricke and others to be as good as that of similar lesions of any other organ with the exception of the lip and the skin. Of 323 cases treated by them with a combination of surgery and irradiation, 5-year cures were effected in 43.9 per cent. Twenty per cent. of these individuals lived ten years.

Since the very earliest recognition of exophthalmic goiter, surgery, supplemented by supportive and protective measures, has been the most successful method of combating the disease. Nevertheless, for many years serious obstacles have impeded the progress of surgery in this field. Due to the complicated nature of its problems, the high operative mortality and the lack of understanding of the cause of death, many surgeons were unwilling to undertake the operation. In fact, it is only within the past twenty years that the surgery of hyperthyroidism has become a relatively simple and safe procedure. The successful outcome of operations in other branches of surgery, including simple nodular goiter, was almost wholly dependent on the perfection of technical measures and asepsis. The operative mortality in the removal of adenomatous goiter with hyperthyroidism is mainly dependent upon the condition of the heart and kidneys or some constitutional disorder, while in exophthalmic goiter the severity of the intoxication constitutes the additional and often the greater risk. Adherence to a faultless technic and rigid asepsis often fail to avert disaster. The mortality rate has always been in the past, and still is at the present, as much from crisis as all other deaths in thyroid surgery.

It is now conceded that the most efficacious method of treatment of exophthalmic goiter is one which combines both medical and surgical measures. Alone, either will be found inadequate for the great majority of cases. They call for constant and closest cooperation between the internist and the surgeon from the beginning of the treatment. The consensus of opinion to date is that the greater majority of patients with hyperthyroidism should first have a period of medical treatment and later be subjected to surgical procedures.

Undoubtedly the greatest recent advance in the treatment of hyperthyroidism has come from the administration of iodine. It has been generally agreed that, in comparison with other measures, it is the most valuable drug in the treatment of this disease. It must be understood, however, that the beneficial results of medical treatment alone are at best but temporary, and that the drug treatment should be followed within a relatively short time by proper surgical procedure. Between the remission and the next exacerbation the patient remains in a state of varying degrees of hyperthyroidism which may cause considerable visceral damage. The maximal results derived from the administration of iodine are usually obtained in from ten to fourteen days, but in some cases a period of three weeks is required. A second, or even third remission may be produced with iodine but each one, after the first, is brought about with much more difficulty and is less complete than the first. According to Reinhoff, operation as soon as the first remission is established offers the best prognosis, and once this golden opportunity has been allowed to slip away another such remission can be obtained only with great difficulty, if at all.

While by far the greatest value derived from

the use of Lugol's solution has come from its employment in the preparation of patients for operation, it has also proved to be an exceptionally valuable diagnostic agent in mild and atypical cases of hyperthyroidism. Although the usually accepted range of normal variability of the basal metabolic rate is within plus and minus ten per cent. too much stress in recent years has been placed upon this single observation. Its value in the diagnosis and treatment of thyroid disturbances is most important only when the reading is extremely high or extremely low. In the cases with a basal metabolic rate varying only slightly from normal, several observations are necessary and other diagnostic factors should be given preference. This is particularly true in hyperthyroidism in children, where considerable difference of opinion exists as to what may be considered a normal rate. Since the characteristic effect of Lugol's solution is to relieve symptoms of hyperthyroidism, its use as a diagnostic agent in exophthalmic goiter is clearly indicated. A remission in the cardinal symptoms after its use and an exacerbation after the administration of the iodine has been discontinued is good evidence of the presence of hyperthyroidism in these atypical and border-line cases.

Although the use of Lugol's solution has reduced the severity of all manifestations of the disease and resulted in a smoother postoperative convalescence, there is still a group of about five per cent. of patients with exophthalmic goiter who cannot be made satisfactory surgical risks by the prolonged medical treatment. In this group, a two-stage operation is clearly indicated. A preliminary ligation of one or more of the thyroid arteries, as formerly done by Kocher, will so improve the patient's condition that the gland can be resected later without the danger of an acute reaction.

Roentgenotherapy has frequently been suggested in these and other cases of hyperthyroidism. While it is admitted that in a large number of cases treated by x-ray there is a gradual diminution in the basal metabolic rate and a general improvement of the patient, radiotherapeutic methods have several serious drawbacks. The dosage is difficult to determine. The favorable result in the beginning may, due to the cumulative action of the x-rays, eventually prove to be excessive. This treatment has none of the precision of the operative treatment. Further, radiotherapy is contraindicated in those cases of goiter which, sooner or later, come to operation. The inherent difficulties of an operation for exophthalmic goiter are increased to such an extent by the x-ray as to almost render the operation impossible. The adhesions after x-ray treatment are only to be compared in many cases to those produced by previous thyroidectomy in exophthalmic goiter and usually they are more marked. Further, a most important objection to x-ray treatment is the fact that visceral damage continues to advance while the gland is being treated and, in many instances, reaches a dangerous degree before it can be controlled.

In spite of the benefits of surgery in toxic goiter, recurrence of toxicity as well as persistence of symptoms occur in about five per cent. of cases. The cause of recurrent symptoms following operation for exophthalmic goiter has not been fully explained. Various theories, as well as carefully conducted studies along this line, have been reported, but as yet no satisfactory reasons have been established as why, in an occasional instance, recurrence of hyperthyroidism takes place at varying intervals following thyroidectomy. It is true that in many cases the cause of recurrence of the goiter can be definitely traced to incomplete removal of the gland, such as in hemithyroidectomy or in instances in which retrotracheal extensions are overlooked. Yet, there remains a certain definite group of patients in which minimal amounts of gland tissue are preserved and return of symptoms is noted.

Classification of these recurrences, therefore, can readily be made on the basis of whether the previous removal of the gland was adequate or inadequate, and, of course, the proper treatment in the latter type of case is prophylaxis. This consists in a thorough removal of the gland, including the isthmus and also the pyramidal lobe, if present, leaving only a thin layer on the posterior capsule and taking care to locate and resect any retrotracheal extensions. This procedure will prevent most, but not all, recurrences, and it is in this latter type of case that one cannot attribute a return of the goiter to inadequate or incomplete surgery.

The amount of gland tissue left behind obviously cannot be estimated to a very exact degree. If this were necessary, then good results from

thyroidectomy would be few and far between, because the surgeon would have to possess either extremely accurate methods to judge this amount or he would have to have great intuition to know how much tissue was to be preserved. In other words, most cases of thyroidectomy would result in either postoperative myxedema or persistent hyperthyroidism unless a very definite exact amount of tissue were left behind.

It seems then, from evidence obtained by observations of these recurrent cases, that the gland tissue which is preserved regains the power of regulating the function for which the thyroid is responsible, and it can meet demands made upon it so that an apparently normal response takes place. The large proportion of cures in exophthalmic goiter gives strong evidence of this fact. As Pemberton and others have emphasized, thyroidectomy breaks a link somewhere in the chain of endocrine functions so that a normal balance between these organs is usually restored. He also points out the fact that in about forty per cent. of these cases of recurrent hyperthyroidism some predisposing etiologic factor seems to be present, such as a cold, influenza, overwork, worry, fright, shock, pregnancy, or an operation. However, as to their actual significance there is some doubt.

In only a few cases a partial return of some of the signs of hyperthyroidism is present and it is in these cases especially that therapeutic measures fail. In a certain group of cases, exophthalmos, frequently hardly noticeable preoperatively, becomes more and more progressive following removal of the gland so that permanent damage seems a likely factor in the production of these changes. The pathologic change responsible for this condition, as determined by Naffziger and Jones, is of mechanical origin, and, as described by them, is the result of pronounced swelling of the extraocular muscles to from three to eight times their normal size. They recommend, for these cases of progressive exophthalmos following thyroidectomy, removal of the roofs of the orbit through bilateral frontal bone flaps.

General Surgical Consideration. In the surgery of the thyroid, as in other operative procedures, the surgeon may follow no premeditated plan of attack, merely excising goitrous tissue and accomplishing hemostasis as removal of the gland progresses; or, he may ligate and interrupt the main blood supply to the gland by means of small preliminary procedures and thus quickly convert the process into a methodical one in which anatomical structures are more easily and readily recognized and their disposition sooner decided upon. Preliminary hemostasis of this type, which is especially important in thyroid surgery because of the extraordinarily abundant blood supply to the gland, has been found by the author to be well worth the few minutes required for its execution. By this method it is possible to interrupt the blood supply to the thyroid gland from all four of its arteries without detrimental effect to the parathyroid bodies and with little danger of injury to the recurrent laryngeal nerves.

While the technic of thyroidectomy has been so perfected that, together with supportive preoperative and postoperative management, mortality rates have been decreased to less than one per cent., nevertheless the intimate relationship of the gland to the laryngeal nerves or parathyroid glands, hemorrhage and infection do occasionally occur in the experience of even the most skilled surgeons. This is readily understood when one considers the intimate relationship of the bland to the trachea, larynx, superior and recurrent laryngeal nerves, large vessels of the neck and to the parathyroid bodies, and various degrees of injury frequently occur in attempts to apply clamps and ligatures to thyroid vessels. It is with the idea of preventing these annoying and often serious complications and not so much of decreasing mortality rates, that preliminary to thyroidectomy, extrafascial ligation of the inferior thyroid arteries is described and heartily recommended in this communication. The importance of an accurate knowledge of the anatomy of this region cannot be over-emphasized, because by a methodical and careful anatomical dissection structures may be accurately defined and the advantages of hemostasis gained.

Anatomical Considerations. The factors directly related to the problem of hemostasis in thyroidectomy are based upon an accurate knowledge of the anatomic relations obtaining in the neck. The relations of the larynx are especially important in goiter surgery because of the intimate proximity of this organ to the thyroid; and

injury to this structure may be very serious as well as of a permanent nature.

From a study of the relations of the thyroid gland and the laryux made by dissections of 31 cadavers in the Department of Anatomy at the University of Minnesota, several conclusions were arrived at which are at variance with the usual descriptions found in the standard text-books of anatomy. It was found that the superior laryngeal nerve, in addittion to carrying sensory fibers to the mucous membrane of the larynx, also contains motor filaments to the interarytenoid muscles. These studies likewise showed that the recurrent laryngeal nerves are found lying in a position farther from the tracheoesophageal groove than is usually described, and it was further disclosed by these dissections that the relations of the recurrent laryngeal nerve to the inferior thyroid artery are the same on each side of the neck. These relations have been previously described.

The value of the method of hemostasis suggested by the author is further emphasized by the anatomical relations showing the proximity of the recurrent laryngeal nerves to the corresponding inferior thyroid arteries as they ascend laterally in the tracheoesophageal groove to enter the larynx. It can be appreciated how attempts at ligature of this artery can more easily result in disaster to the nerve when carried out through an intracapsular approach than when done extrafasically. In addition to a lessened hazard to the nerve through this approach, it is clear that ligature of the main arterial trunk, rather than one of its branches, is much more likely to be secured. and this obviously possesses distinct advantages in maintaining hemostasis during any following surgical procedure which the operator may choose to carry out.

Ligature of the superior pole is not without danger of impairment of motor functions of the larynx. The superior laryngeal nerve, located a little above the outer surface of the inferior constrictor muscle of the pharynx, gives off an internal branch which supplies the interarytenoid muscle, a constrictor of the larynx by which phonation is accomplished through approximation and adduction of the vocal cords. Furthermore, an external branch of the superior laryngeal nerve innervates the cricothyroid muscle, the interruption of which, according to Jackson and Coates, renders the voice rough, weak and easily fatigued. It is thus obvious that injury to the superior laryngeal nerve, which may easily be doue during polar ligations, can result in varying degrees of aphonia or disturbances in the quality of the voice. The value of hemostasis based on an accurate and careful anatomical dissection is again emphasized.

Technic of Extrafascial Ligation of the Inferior Thyroid Artery. The usual type of goiter incision is made and the flaps containing the platysma and superficial fascias are reflected upward and downward. The medial border of the sternocleidomastoid muscle is dissected free in its lower midportion and the margins retracted outward. Directly underneath are now exposed the fascia of the prethyroid muscles and at the margin of the sternomastoid a vertical slit about three centimeters in length is made in the superficial layer of the deep cervical fascia. The outer cut edge of this fascia is retracted laterally and the index finger is next carried carefully posteriorly until it is possible to palpate the transverse processes of the cervical vertebrae. The inferior thyroid artery is then found running medially at right angles from the carotid artery at the level of the sixth cervical vertebra. This level is marked as a rule by a small tubercle on the vertebral body. Linen on a carrier is then readily placed about the artery and the vessel is ligated.

.Graphic illustration as to the anatomical structures encountered in the extrafascial ligation of the inferior thyroid artery is shown in the accompanying transverse section of the neck. The marked advantages of the extrafascial route to the artery are distinctly emphasized. Hemostasis is more complete, chances of injury to the recurrent nerve are decreased, and the ligation itself can be done easier in a cleaner field.

Ligation of the Superior Pole of the Thyroid Gland. In further application and carrying out of the principle of hemostasis preliminary to the actual removal of the thyroid gland, brief reference will be made to technic of ligation of the superior pole and of the superior thyroid artery. As previously emphasized, voice changes may follow superior pole ligations if great care is not taken to avoid the superior laryngeal nerve while applying the ligature. The superior laryngeal nerves usually enter the larynx at a point slightly

above the level at which the artery enters the gland and lie on the outer surface of the inferior constrictor of the pharynx. Hemostasis can thus be best accomplished, with a view to interrupting this source of blood supply and still avoiding these nerves, by application of a ligature in the following manner: a carrier containing either linen or catgut, as the surgeon may choose, is thrust around the superior pole, starting from the trachea and proceeding to the lateral margins of the gland. For this purpose it has been found that blunt ligature carriers are superior to the application of artery forceps inasmuch as the latter are easily torn off or displaced during any subsequent operative procedure. Serious hemorrhage may occasionally result before the bleeding vessel is secured. It is advantageous to guide the carrier with the finger in order to include only the amount of tissue desired. Ligation may be made in this manner either doubly or singly without danger to the superior laryngeal nerve, a constant menace when the artery itself is dissected out at a high level. An additional advantage in ligation of the superior pole consists in the preservation of the healthiest part of the gland itself, because the most normal portion of the gland is located in this area. However, if it is desired to ligate only the vessels at the superior poles without inclusion of goiter tissue, a procedure frequently called "ultra" ligation, the method of using a carrier still retains the same advantages as those described for polar ligation.

It must be borne in mind that a ligation applied high on the vessels or around the horn in extremely large glands which have pushed themselves upward, endangers the superior laryngeal nerve, the internal branch of which enters the larynx through the thyrohyoid membrane. Injury to this nerve is more probable when clamps are applied.

General Considerations. Injury to the recurrent laryngeal nerves occurs most frequently in the clamping and ligating of blood vessels during resection of gland tissue. Therefore, if control of hemorrhage can be carried out preliminary to thyroidectomy, a factor of safety is added in which there is a definitely decreased incidence of injury to the nerves. This is no small item when one considers the possible dangers, especially if the nerves on both sides are injured or cut.

In the ligation of the inferior and superior thyroid arteries the question of maintenance of adequate blood supply to the parathyroid gland presents itself. A frequently stated objection, namely, that by this procedure the nutrition of these glands is said to be impaired, has probably played a most important role in discouraging a great many surgeons from carrying out a complete program of hemostasis such as is here suggested. Regarding the blood supply of these small but important organs, it may be stated that by both laboratory and clinical studies the question has been definitely settled that no damage results following ligation of all four main arteries. Abundant collateral blood supply to the parathyroids has been demonstrated by injection of the aorta after ligature of all four arteries; and in dissections of the neck, arteries adequate to supply these glands can be found. Clinically, many series of cases have been reported in which tetany has not developed after complete hemostasis has been done by the method described. In our own cases in which all four arteries were ligated, in not a single instance has parathyroid tetany resulted.

Advantages characterizing the procedure of preliminary ligation of the inferior thyroid can be readily appreciated by observation of the gland immediately after tying the artery. A full half or two-thirds of the gland becomes dark, the capsular veins collapse from interruption of their blood supply and the glandular tissue itself shrinks markedly in size. Decrease in size of the gland takes place in many instances to such a degree that a large hyperplastic type of goiter will frequently become relatively normal in outline. In these cases any subsequent procedure which may be carried out is noticeably free of bleeding, spurting arteries are practically never encountered, and what small amounts of bleeding may take place originate mainly from the lesser veins. As a direct consequence of the decreased bleeding, fewer clamps and ligatures in the gland tissue are necessary. The speed with which the subsequent thyroidectomy is done is definitely facilitated, an important factor in treating cases in which toxicity is of a severe degree. Other factors, while of little influence regarding mortality rates, consist in a definite lessening of postoperative wound drainage, for the reason that less catgut is necessary in tying

bleeding vessels, and the chances of obtaining a satisfactory neck scar are greatly enhanced. This may be expected from the fact that draining areas from the wound are fewer and chances of secondary infection of the discharge are noticeably decreased. The latter is a point which must not be disregarded, especially in the female.

Ligation of the inferior thyroid arteries in combination with thyroidectomy affords an additional weapon in the treatment of that group of toxic goiters which recur in spite of adequate removal of thyroid tissue at the primary operation. In these individuals it is often found that at secondary operations only small amounts of thyroid tissue can be located, and frequently it is only with a great deal of hesitation that the surgeon wishes to resect the remaining portion of the gland. The authors have found that by ligation of the inferior thyroid arteries combined with subtotal thyroidectomy, results may be obtained which are definitely superior to those expected when ligation is not performed. Report of these results is being made at the present time in a separate communication.

It has been emphasized previously that injury to the recurrent laryngeal nerves takes place most frequently in those cases in which secondary operations are necessary. This is due to the fact that anatomical relations have become distorted through scar formation, resulting in displacement of the nerve into positions which are particularly susceptible to injury. This type of case again lends itself especially well to the performance of preliminary ligation of the inferior arteries as suggested above, and in the author's experience has given particularly gratifying results.

Postoperative hemorrhage, which takes place in one or two per cent. of even the most carefully done thyroidectomies, has never occurred in our experience in any instances in which preliminary ligation was performed. From this standpoint alone the procedure would seem worthwhile.

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RECONSTRUCTION OF THE HIP

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The records from the Fracture Service of Cook County Hospital during the past five years showed the following results in cases of fracture of the neck of the femur.

The records of 2,000 cases of fracture of the femur during the years 1929 to 1933 inclusive were analyzed. Of these, 370 were diagnosed as fractures of the neck of the femur. One hundred ninety-eight patients were females, 53 per cent., and 172 males, 47 per cent.

The neck of the right femur was fractured in 206 or 55 per cent., the neck of the left femur in 164 or 45 per cent.

The age groups were as follows:

	Case
7 years	1
10-19 years	6
20-29 years	4
30-39 years	7
40-49 years	36
50-59 years	94
60-69 years	102
70-79 years	84
80-89 years	32
90-95 years	4
	370

Fifty-three per cent. occurred between the ages of fifty and seventy.

TYPES OF TREATMENT AND RESULTS

Treatment	Good Result	Poor Result	Undetermined	Per Cent
1. Adhesive traction with Thomas splint—102 cases..	28	54	20	28%
2. Whitman abduction cast—85 cases	40	28	17	23%
3. Bone peg or bone transplant—11 cases	6	4	1	3%
4. Metal screw or nail—5 cases	1	3	1	14%
5. Anderson splint—no cases..				

Read before the Chicago Surgical Society, March 2, 1935.

6. Adams splint—no cases....			
7. Whitman reconstruction operation—21 cases	16*	5†	14%
8. No treatment instituted—145 cases	59†		40%
	86‡		

Good results—91—24+ per cent.

*Recovered. †Died. ‡Other reasons.

As these fractures were treated by different men, no single method was used by all. How-



Fig. 1. Showing absorption of neck of femur.

toms could only partly be controlled by medicine. Four a No. 20 soft rubber catheter, which was placed into

ever, no effort was made to preserve the impaction when it occurred but the deformity was reduced and the fragments immobilized as in other types of fracture. Until Whitman's demonstration of the fact that the best results were obtained by breaking up the impaction with the fragments immobilized in abduction and internal rotation, the impaction was regarded as the best chance of securing union of the fragments. Because of the poor nutrition of the neck resulting from the paucity of the blood supply and the deficiency of the periosteum over the neck, failure of union occurred in 40 per cent. of cases under sixty years of age, and in over 60 per cent. of those patients over sixty years of age, regardless of the type of treatment. Among these were:

1. Simple Buck's extension.
2. Maxwell-Ruth method.
3. Lateral "T" splint with traction.
4. Thomas splint-Balkan frame.
5. Jones splint utilizing the principle of leverage with traction.
6. Anderson splint; leverage and spring traction.
7. Adams splint utilizing leverage alone.
8. Ambulatory pneumatic splint.

Since the percentage of failures was so high and as the patients were hopeless cripples and in many instances suffered constant pain, an effort was made to give these patients a useful hip-joint by the method of hip reconstruction developed by Whitman.

As all of our patients had been treated by one of the methods above mentioned, for an average of twelve weeks in bed, they were obviously not justifiable surgical risks without a period of recuperation and building up. Some of the cases were bordering upon senility and seemed hopeless at first until somewhat restored by a period of rest at home.

Because of the fact that all of these cases had been hospitalized for a period of over three months, the comparatively short period of convalescence required by the Whitman procedure made this the operation of choice. Economic pressure forced an earlier interference in some cases than seemed desirable.

The operation was carried out as follows:

An incision was carried downward, from the anterior superior spine of the ilium for a dis-



Fig. 2. Head removed from acertabulum. Great trochanter sawed off. End of shaft of femur rounded off.

tance of about four inches on the affected side, then carried posteriorly for a like distance at right angles to the first incision. An opening was found between the gluteus medius and the tensor vaginae femoris. The capsule of the joint

was exposed and found to be greatly hypertrophied in those cases in which weight bearing has been attempted in the presence of lack of union. One patient in a desperate attempt to walk with no union had forced the great trochanter almost up to the crest of the ilium, resulting in a tremendous thickening of the capsule.

The capsule was now incised and the foot released from its attachment to the traction arm of the fracture table. The leg was flexed upon the thigh and strong external rotation obtained. With a Lane elevator, the head was then pried



Fig. 3. New head in place. Great trochanter fixed to shaft.

out of the acetabulum and the ligamentum teres divided. In many instances the head was found to have undergone a high degree of absorption second only to that of the neck. Because of this softening, attempts to introduce the Lane elevator often cut deeply into the head and in some instances completely divided it. The extreme degree of absorption of the neck and head gave evidence of the difficulty in obtaining union in those cases in which dependence was put upon new bone formation (osteogenesis) for the restoration of a weight bearing neck. After removal of the head of the femur, the lower extremity was rotated inwardly in order to better exposure of the great trochanter. With a Gigli saw or a broad chisel the great trochanter, carrying with it the rotator muscles of the thigh, was separated from the shaft of the femur and reflected upward. With a bone cutting forceps the upper portion of the shaft was rounded off to serve as a head. This was then skidded into the acetabulum by traction and rotation. In most cases the newly formed head tends to remain snugly in the acetabulum without any means of fixation. A portion of the shaft was now chosen for the attachment of the great trochanter. This should be sufficiently far down on the shaft so that extreme abduction will not cause the transplanted great trochanter to impinge upon the rim of the acetabulum. The fixation was done by freshening the shaft at the point selected and then drilling holes through the trochanter and shaft through which wires were threaded and twisted up snugly. The limb was then immobilized in a double spica reaching from the nipple line to the toes on the affected side and to the knees upon the sound side with both limbs in forced abduction and internal rotation. The cast was removed at the end of four weeks and passive motion and massage begun. This is in marked contrast to the three months required by plastic operations depending upon osteogenesis for their success, in which the double spica must remain in place for twelve weeks at the minimum.

In an effort to escape the complications incidental to the Whitman cast, we used a simple Adams splint with plaster boots reaching from the knees to the toes, with both limbs in forced abduction and internal rotation, immobilized by a long wooden transverse splint incorporated in the plaster boots. Because of the fact that there is no tendency for the newly formed head to dislocate, this method of immobilization is sufficient and obviates the tortures and complications of the body cast. The Adams splint confers a surprising amount of bodily freedom upon the patient, thus escaping the dangers of hypostatic pneumonia and decubital ulcers in addition to solving the problems of nursing and the patient's toilet.

The objection that the Whitman operation does not preserve the normal anatomy of the hip-joint is more than over-balanced by the greater certainty of a weight-bearing joint and the shorter convalescence. The amount of shortening which necessarily follows the Whitman operation is not sufficient to seriously interfere with walking or weight bearing.

It is believed that because of the relative simplicity of the Whitman operation it should be resorted to in cases of non-union following a fracture of the neck of the femur except when contraindicated by extreme age, constitutional disease or local infection.

In 21 cases operated upon five died, chiefly from pneumonia, decubitus and cardiac failure, a mortality percentage of fourteen per cent.

The use of the Adams splint reduces the hazard of the operation and justifies operative interference in cases which could not be undertaken were a body cast to be used.

The shock of the immediate operation is not great. The chief danger lies in the protracted convalescence in a rigid body cast.

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INTERMITTENT GASTRIC OBSTRUCTION FOLLOWING CHOLECYSTECTOMY

CLIFFORD U. COLLINS, M. D.
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It is well known that a fixation of the pyloric portion of the stomach interferes with its motility and function. This disturbance to the function of the stomach may be caused by adhesions or peritoneal processes. I believe that fixation of the pyloric portion of the stomach may make possible an intermittent torsion which will cause attacks of pain and vomiting. It is difficult to prove that a twist or torsion of the stomach is present during the attack; however, it is probable.

Dr. Karl Meyer of Chicago, in a paper presented to the Western Surgical Association in 1930, on "Intermittent Gastric Illeus due to Mechanical Causes," did not mention adhesions of the pyloric portion of the stomach as a possible cause, but did say that a case of volvulus of the stomach had been omitted from his paper because of lack of demonstrable evidence.

Following a cholecystectomy, a patient may suffer from attacks of severe pain, accompanied with vomiting, in the right upper abdomen; the incision may reveal dense adhesions of the pyloric portion of the stomach which are separated and are prevented from reformation. It is a reasonable conclusion, therefore, that if the patient is relieved from the attacks of pain, then the adhesions were the cause of these attacks.

There is usually no fever and no appreciable increase in the white blood cell count in attacks of pain and vomiting due to mechanical causes. Recognition of these facts aids in the diagnosis.

Two illustrative cases of intermittent attacks of pain in the upper abdomen, with vomiting, following a cholecystectomy will be presented:

Case 1. Mrs. J. R. B. had a cholecystectomy performed on October 28, 1928. The sides of the gallbladder fissure fell together which covered the raw surfaces and it was not deemed necessary to suture the edges. No drain was inserted. She did well, however, for three months when she began to have mild attacks of pain in the upper abdomen a little to the right of the median line. The pain lasted several hours and required morphine, although morphine made her nauseated and she did not like to take it. At one time she went eight weeks without an attack. She felt well between the attacks of pain.

The attacks of pain became more frequent and severe and were accompanied by vomiting. The patient did not have any fever during the attacks and her highest white blood count was 10,200. We concluded that the trouble was mechanical and was probably due to adhesions. An exploratory incision was advised and accepted.

The incision was made on February 3, 1930, and revealed dense adhesions of the stomach to the under surface of the former incision. The duodenum was densely adhered to the fissure in the liver. As the adhesions were being separated, it was seen that as the stomach was rotated from above downwards, it produced a kink or fold in the duodenum.

After the adhesions were separated the omentum was brought up and the right corner was sutured to the region of the stump of the cystic duct. This put the omentum between the raw surfaces of the duodenum and the fissure in the liver, and also between the stomach and the under surface of the former incision. The omentum prevented the adhesions from reforming in their former position. In the event that adhesions did reform, the fatty omentum prevented them from becoming tight and dense. Her recovery was uneventful and there have been no more attacks of the pain.

Case 2. Miss M. K. had her gallbladder removed in June, 1933. In the fall of that year she began to have vomiting spells with pain in the right upper abdomen. She was seen by us on July 23, 1934. The attacks of pain and vomiting had increased in severity. One and one-half years before she had weighed 235 pounds and at the time of our examination she weighed 142½ pounds. The attacks of pain lasted several hours and were relieved by morphine.

She said that she had no fever during the attacks and her white blood count at the time of the examination was 10,150. She was tender on pressure over the midline of the upper abdomen, about one inch above the umbilicus. A diagnosis was made of adhesions of the pyloric end of the stomach to the liver and an exploratory incision was advised and accepted.

The incision was made on August 3, 1934. The pyloric end of the stomach was tightly adhered to the upper end of the gallbladder fissure. The dense adhesion was about the size of a half-dollar. The pyloric side of the adhesion was on the lower side of the pylorus. This twisted the pyloric end of the stomach

Read before the Section on Surgery, Eighty-fifth Annual Meeting, Rockford, May 22, 1935.

so it was reasonable to suppose that this condition caused the attacks of pain and vomiting. The adhesion was separated and the omentum was brought up and sutured as near to the stump of the cystic duct as we could estimate its location. This interposed the omentum between the stomach, duodenum and liver. The illustrations show the location of the dense adhesion with the method used to prevent the reforming of the adhesion.

The patient was last seen on November 30, 1934.

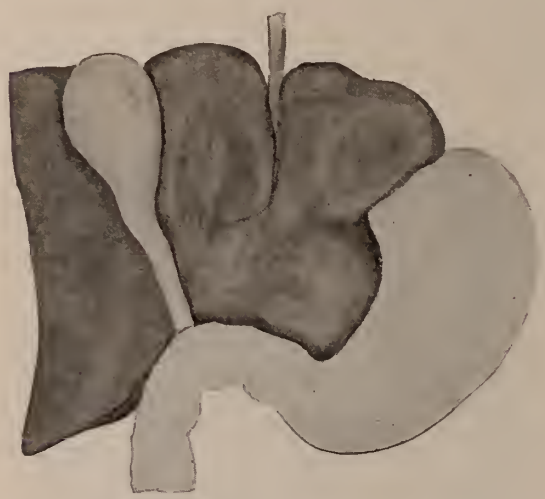


Fig. 1. The normal relation of the pylorus, duodenum and gallbladder when the edge of the liver is held up.

She had gained 16½ pounds in weight and was satisfied with the results of her operation.

Another case will be described which does not properly come under the title of this paper; however, it illustrates the principles involved in the condition and the method of preventing it.

Case 3. V. L. H., a baby three weeks old, developed symptoms of congenital stenosis of the pylorus. An x-ray examination revealed that none of the barium meal passed out of the stomach.

On January 28, 1929, a Rammstedt operation was done for the pyloric stenosis. The omentum was so thin in the emaciated baby that I did not think it would do any particular good to suture it over the operative area on the pyloric end of the stomach. The baby with its mother left the hospital. The baby was taking and retaining nourishment and was seemingly recovered. Two weeks after the operation the baby began to have an emesis of food with a gradual loss of weight. An x-ray examination again revealed that none of the barium meal passed out of the stomach. A diagnosis was made of an adhesion of the pylorus to the liver producing a kink in the duodenum, thus obstructing the passage of food.

A second operation was performed on February 24, 1929. The pyloric end of the stomach and duodenum were firmly fastened to the under surface of the liver, which produced a kink in the duodenum and caused obstruction. The adhesions were separated and the area on the pylorus and duodenum that had adhered to the liver was covered with the omentum. The little patient recovered rapidly and is now a healthy little girl.

During the last few years I have rarely sutured the edges of the fissure in the liver, following a cholecystectomy, but have interposed the omentum between the pylorus, duodenum and the fissure. No trouble has occurred when this was done. I cannot remember where the idea was obtained but I am not claiming any originality for the method.

If for any reason the omentum cannot be used in this way, the right portion of the transverse colon may be interposed between the fissure of the liver and the pyloric end of the stomach. Dr. E. Wyllys Andrews of Chicago, in a paper published in the *Journal A. M. A.* for September 16, 1905, advised the interposing of the colon between a gallbladder that had been drained and the stomach. His paper was entitled, "Colohepatopexy or Colon Substitution. A New Operation for Perigastric Adhesions after Gallstone Operations." Of course this was before the operation of cholecystectomy had superseded cholecystostomy. It is well known that

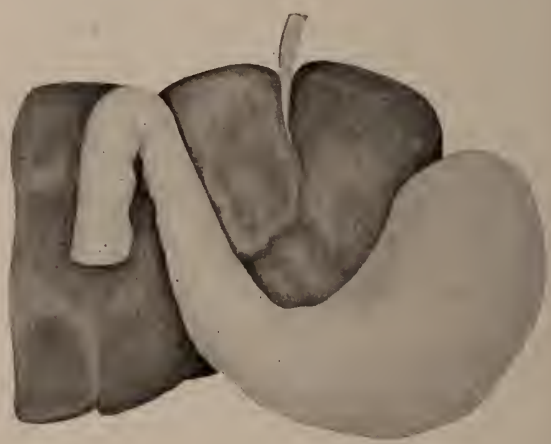


Fig. 2. The adhesion of the pylorus to the liver as described in Case 2.

adhesions of the colon rarely produce obstruction while adhesions of the small bowel frequently cause obstruction.

Conclusions. 1. If a patient has attacks of pain and vomiting without fever, or an increase in the white blood count following a cholecystectomy, the condition of adhesions of the py-

loric portion of the stomach to the fissure in the liver should be considered.

2. The placing of the omentum between the pyloric portion of the stomach, duodenum and the fissure should prevent any harmful adhesions.

DISCUSSION

Dr. John A. Wolfer, Chicago: The application of the principles that Dr. Collins brings up applies to other regions of the abdominal cavity as well as the vicinity of the gallbladder. We see such symptoms appear in two forms: more or less soon after the operative procedure and late. In the first instances they are due to acute gastric dilatation which may be due to or be associated with duodenal obstruction. The late to adhesions.

Adhesions have been a matter of concern of the surgeon since abdominal surgery has become developed. Their prevention and correction when once formed has taxed the surgeon's skill and patience. Periduodenitis as described by Shoemaker and called Shoemaker's disease is a very trying condition. At times the duodenum is enmeshed by dense adhesions or there may be distinct bands which extend from the region of the hepatic colon to be attached to the under surface of the right lobe of the liver, constricting the duodenum. In some of these instances the severance of a band may relieve the obstruction. Since adhesions are commonly encountered one might speculate as to



Fig. 3. The adhesions of the pylorus and liver described in Case 2 separated and the pylorus placed in its normal relationship to the liver.

how they may be prevented. In a course of lectures to students on postoperative complications, I have stressed this point. There are certain things we may do during the operation which predispose to the formation of adhesions. The most important is trauma. Trauma along with drying of the serous coat of exposed organs in the absence of infection, in my opinion, is the cause of the largest percentage of postoperative adhesions. When a loop of gut is allowed to become dry and then traction made against it with the hand or gauze pad, the superficial layers of the serosa are wiped or torn away, thus favoring the agglutination of its surface against another and equally traumatized surface.

Dr. Collins mentioned that in his first case after the removal of the gallbladder the edges of the liver fell together and yet adhesions occurred. We all recognize that one individual will develop adhesions when an-



Fig. 4. The omentum placed between the fissure in the liver and pylorus and duodenum to keep the adhesions from reforming.

other will not; also that one individual will develop adhesions that will tend to disappear or become pliable while in another, they tend to become denser and contract so as to compress those organs or structures within their grasp.

The technique described by Dr. Collins reminds me of a case under my observation some years ago. This patient had been operated upon on two occasions elsewhere and presented symptoms as described by Dr. Collins. At the operation there were found many adhesions between the liver, duodenum and stomach and colon. It appeared as though some type of plastic procedure had been tried. The adhesions were freed and a free omental transplant inserted between the lower surface of the liver and duodenum. She returned a year or more later with recurrence of symptoms and by rentgenological study a marked duodenal stasis was observed. She was operated upon again and because of extensive adhesion with obstruction low in the duodenum a duodenojejunostomy was performed. She has had relief since this last procedure.

I think the presentation of this subject by Dr. Collins is very timely because not infrequently after upper abdominal operations such a group of symptoms occur. If the symptomology is as he has outlined, something radical must be done. There are other types which are not so urgent or distressing, but there is a symptom residue and the patient is not cured. It is often a problem as to whether they can be benefited by some surgical procedure. I think Dr. Collins' plan

of inserting the omentum betwen the liver and the duodenum is a very good one and deserving of trial.

Dr. George deTarnowsky, Chicago: Dr. Collins' paper is very timely. We need these practical points which we can carry home and use in our practice. We have also seen these postoperative cases. Most of them, as Dr. Wolfer says, are not sufficiently invalided to require a second operation. They complain of bloating, nausea and distention following a heavy meal. They hardly ever get to the point where they have loss of weight or are actually run down. I have noticed that the individuals who complain most of these postoperative symptoms are those in whom the healed incision is almost a keloid. They seem to have a predisposition to the outpouring of connective tissue. I think it is that type that Dr. Collins has so well described. I have such a patient under treatment now. I did a cholecystectomy on him three years ago. He is now convinced that he has a carcinoma of the stomach. So far our laboratory tests are negative. I am certain if he does consent to a second operation I will find these dense adhesions. I think Dr. Collins' plan of transfixing the omentum is an excellent one. Where it cannot be transfixed, a free omental flap is a very excellent substitute. There is enough agglutination to hold the omentum in place.

As Dr. Wolfer has said, the essential thing is the absence of trauma at the time of operation. Gentleness in handling tissues, avoidance of undue traction on the stomach and duodenum in the performance of cholecystectomy or whatever type of operation we are performing, are most important points.

PRIMARY URETHRAL CALCULI

Report of a case with resection of the urethra.

Norris J. Heckel, M. D.
Robert E. Johannesen, M. D.
CHICAGO

While the medical literature of today abounds with innumerable discussions of calculi found in the genitourinary system, few have been the discussions of the occurrence of such calculi in the urethra. Still more infrequently, has the discussion been addressed to the subject of primary urethral calculi; therefore, we present the following case history, which we believe will prove to be of unusual interest.

Case report: Mr. S. P., aged 63 years, married, entered the Presbyterian Hospital on December 31, 1934, with acute urinary symptoms of frequency, urgency, nocturia, dysuria, pyuria and hematuria, all of four days' duration.

Onset and course: For the past six weeks, the patient has had a severe asthma, characterized by dyspnea, shortness of breath and a severe cough. These symptoms could only partly be controlled by medicine. Four days ago, he noticed that each specimen of urine was red, and this was followed by marked dysuria and burning. Simultaneously with the onset of the hematuria, frequency of micturition developed and has increased gradually until he now voids every thirty to forty minutes. There is no force to the stream and the hesitation and dribbling has increased in severity during the last twelve months. Thirty years ago, he had to be catheterized five or six times because of an acute retention. This was not preceded by any attack of pain similar to a renal colic, and he was told by the physician that a stricture was the cause of the trouble. From then until the onset of the present symptoms, he has been very well, except that during the last one or two years the urinary stream has been getting smaller and its force gradually diminishing. No stones have ever been passed, nor has he had any previous attacks of renal colic. Venereal disease, he denies.

The past history, family history, and history by symptoms are essentially negative.

Physical examination: The patient is an elderly white male, well developed but emaciated. He appears acutely ill.

Head and neck: The tongue is dry and coated. *Eyes:* Pupils react to light and accommodation. *Neck:* Negative.

Cardio-respiratory: The heart reveals no important pathological alterations. The chest is full of coarse, wheezy, rattling sounds; there are no areas of dullness.

Abdomen: In the upper right quadrant, to the right and above the umbilicus, is a questionable palpable mass, which might be kidney or liver. There is no fluid nor areas of tenderness.

Nervous system: Deep and superficial reflexes present. No pathological reflexes; no sensory disturbances.

Genitalia: The external genitalia is negative. On palpation of the perineum, a firm, hard, circumscribed mass about the size of a large olive can be felt just back of the scrotum.

Rectal: The prostate is slightly enlarged, smooth, and elastic. The seminal vesicles are palpable.. The findings are not suggestive of carcinoma.

Laboratory findings:

Blood Count:

Hemoglobin	65%
Red blood count	5,230,000
White blood count	9,400
Differential count	N-56 (100 counted)
	SM-30
	T-4
	E-10

Blood pressure = 120/70.

Urine:

Sugar	0
Albumin	2 mm.
Calcium phosphate casts	+
Triple phosphate casts	+
Red blood cells	0
White blood cells	0
S. G.	1.020
Debris	+

Urine cultures: B-coli.

Roentgen ray findings: Chest: The film shows rather heavy hilum shadows, and moderately heavy uniform

intensification of lung markings in both lung fields, suggestive of chronic bronchitis.

Genito-urinary system: The kidney outlines are normal. No evidence of urinary stone shadows are seen. On the smaller film, there is a dense oval shadow, measuring about 12 x 18 mm. and lying in the soft tissues 2 cm. below the lower border of the symphysis pubis which raises the question of a stone within the urethral canal. There is a small density near the outer part of the right transverse processes of the third and



1. Plain X-ray of stone; note position.

fourth lumbars, which suggests a calcification in a gland rather than a urinary stone.

Excretory pyelograms: Both kidney pelves are at the level of the second lumbar, small, normal. Lower part of both ureters are irregular dilated and atonic. The bladder is not well visualized. The small density in the right side of the abdomen is outside the line of the ureter. The dense oval shadow below the symphysis is still present and well visualized on a small film. It strongly suggests a stone in the lower urethra.

Urethrogram: A very small amount of the opaque solution has passed the previously described shadow and has filled the urethra above for a distance of about one inch. There is no dilatation of this portion of the urethra.

Cystoscopy: An attempt was made to pass a No. 20 cystoscope into the bladder, but it met an obstruction at the bulb. Several efforts were made to pass bougies, filiforms and sounds through this obstruction but with no success.

Operation (N. J. H.): On January 5, under general anesthesia, a typical perineal prostatectomy inverted "U" shaped incision was made. The superficial and deep fascias of the perineum were dissected upward, after which the bulb and transverse perinei muscles came readily into view. The stone could be palpated through the bulb. An incision was made through the midline of the bulb, and a large, smooth stone the size of an olive was removed. It was imbedded in the urethra and surrounded by much hard, fibrous tissue.

The urethra, at each end of the pocket where the stone rested, was almost completely stenosed. Various types of sounds could not be passed through this region. Therefore, one inch of this part of the urethra was completely resected, and reconstruction of the urethra by an end to end anastomosis was made around a No. 20 soft rubber catheter. which was placed into the bladder through the penis. The usual closure of the wound was made and the patient left the operating room in good condition..

Subsequent course: The patient made an uneventful recovery. On the eighth postoperative day, the indwelling catheter was removed, and the patient discharged four days later. Since then, on an average of once a week, sounds up to No. 29 have been passed without difficulty. The urinary symptoms have entirely disappeared.

Chemistry of the stone: The surface of the stone was smooth and shiny. When cut in half it was homologous with no evidence of circumscribed nucleus The chemical composition was principally phosphate with a slight trace of calcium oxalate.

Before proceeding with the discussion of urethral calculi, we observe that J. Swift Joly has classified these unusual stones into two separate divisions: migratory, or secondary, and autochthonous, or primary.

It is obvious, that the reported case is em-



2. Urethrogram, showing absence of dilatation proximal to the stone.

braced in the latter classification. These particular stones are always formed in the urethra itself, or in a pouch opening from it. They are uniform in structure, composed of phosphates, and generally infected.

The origin of the migratory stones is in the bladder or kidney, the stone later migrating to

the urethra. These stones have a distinct nucleus and are composed of uric acid or calcium oxalate.

In a series of 34 urethral stones admitted to St. Peter's Hospital from 1915 to 1924, Joly found only three which belonged in the autochthonous group.

Debenham, who studied 40 cases of urethral stones from the London Hospital in the last twenty years also found only three that could be considered as primary. From a series of 405 urethral calculi, Englisch reports 35 autochthonous stones, or a proportion of about 1:11.

In regard to the position of stones in the urethra which was also studied by this author in 361 cases, the following results were given:

Posterior urethra	41.2%
Bulb	18.8%
Scrotal	13.8%
Penile	14.6%
Fossa navicularis	11.3%

Jeck in a study of 17 cases of stones and other foreign bodies in the urethra found that in the stone cases, of which there were fourteen, half were in the posterior urethra and half in the anterior. Five of the stone cases had stones elsewhere in the urinary tract.

In the Debenham series, 50 per cent. of the 34 secondary urethral stones were impacted a short distance behind the external urinary meatus; he also observed that 21 per cent. of his cases had previous stone histories, five patients being readmitted because of recurrent impacted urethral calculi. Although urethral stones are considered to be a disease of middle aged and elderly persons, stones do occur in children. This same investigator gives the ages of the patients as follows:

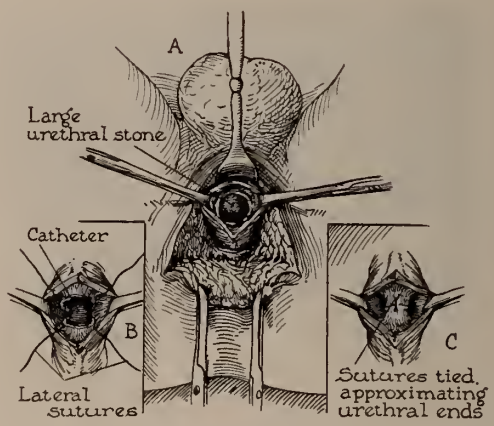
Years	
0- 5	6
6-10	4
11-20	1
21-30	9
31-40	6
41-50	5
51-60	2
71-80	1

Joly submits a comparative table of urethral and vesical calculi in the various age groups.

Age	Urethral	Vesical	Proportion
1-19	3	10	1- 3
20-39	6	43	1- 7
40-59	16	138	1- 8
60-79	9	176	1-19

In patients admitted to the Canton hospital, Thompson found the proportion of urethral to vesical calculi to be 409 to 2,962; 43 per cent. were under 20 years of age, and 41 percent. were between 20 and 50.

Many other authors including Hess, Pasley, Hall and Parnell, Mullerschoen, Macewen, Lai, Balch, and Irvine have reported interesting cases. Pasley reports a case having 120 phosphatic calculi removed from the urethra, and Wheeler's case, a Chinese boy of 9, had 93, the largest of which was 1½ inches by 1⅛ inches. Lai had a



3. Drawing, technique of operation.

patient, a Chinese boatman, from whom a total of 2,170 stones, weighing 81 gms. were removed.

Etiology: Secondary, or migratory stones of the urethra are formed in the kidney, bladder, or prostate, and are about ten times as frequent as autochthonous.

The primary formation of stones in the urethra is influenced to a great extent by stagnation and infection that usually develop from poorly drained cavities. These pouches are most commonly formed by prostatic or peri-urethral abscesses; infected glands during an acute Neisserian infection; congenital or acquired diverticula; and from ulcers or tears of the urethral mucous membrane which later become encrusted with phosphates. Foreign bodies lodged in the urethra can also be a nucleus for the formation of these primary stones. Stricture of the urethra, unless accompanied by an associated pathological finding, is not a common etiological factor in the development of primary stones. The frequency of urethral stricture and the rarity of autochthonous calculi would speak against this factor as playing an important role in the etiology of this group of calculi.

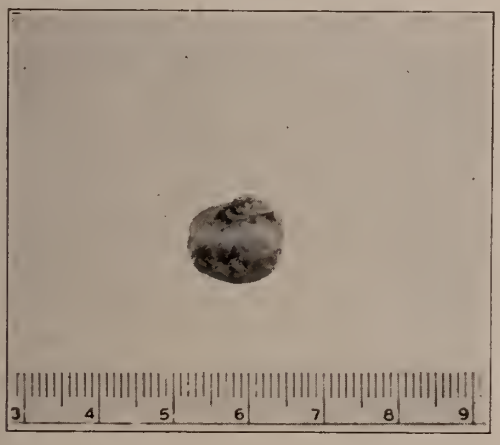
The majority of urethral stones are single. However, if developed in a pocket or diverticulum

they are more likely to be several, and sometimes may be present in large numbers. Although most of the stones are small, many times, especially when found in a cavity, may be unusually large.

Pathology and associated pathology: Inflammatory changes are always present, and from long continued irritation fibrosis of the adjacent tissues occurs with the development of strictures. Areas of leucoplakia have been noticed which would indicate that the stone might be associated with a malignant disease. The formation of an abscess which later can rupture externally with the stone being passed has occurred.

The associated changes in the upper urinary system depend upon the amount of obstruction produced by the stone. These changes may be extensive, such as chronic retention with cystitis, dilatation of the ureters and an ascending pyelonephritis. In cases of a sudden, completely impacted urethral stone, the clinical pathology is that of an acute retention. Although the occurrence of a dilated urethra proximal to the stone has been observed many times, however, such is not always the case, and the urethra may maintain its normal anatomy. Such was the finding in our case.

Symptoms: The symptoms of urethral calculi vary markedly. Many times, because of the



4. Photograph of stone, ½ actual size.

symptomless hematuria, tumors of the bladder and kidney must be considered in the differential diagnosis. In general, it can be said that primary, or autochthonous stones are dormant for a long time without producing any distress. If they have developed in a cavity, the urinary symptoms are very few, or entirely lacking, until a swelling or sore spot attracts the patient's notice to this region.

On the other hand, the symptoms of the secondary, or migratory stones are usually quite severe. If the impaction is sudden and complete, the symptoms are acute in onset and present the picture of an acute retention, characterized by a sudden stoppage of the stream, marked tenesmus, strangury, and later extreme exhaustion. Quite a different picture is observed if the impaction is only partial. Usually in such cases, careful inquiry will frequently uncover a history of previous attacks of renal colic, or passage of stones. In this group of cases, the complaints are generally insidious in onset, the most characteristic of which are dribbling, hesitation, sudden stoppage of the stream and then with manipulation the ability to void again, hesitation and lack of force which may later develop into an incontinence with retention. Urethral discharge, dysuria, and pyuria are not infrequent complaints. Pain is usually present and may be located in the penis or perineum, or referred to the suprapubic or lumbar regions.

In all types of urethral stones, hematuria, either gross, or microscopic, is a very common finding. The variability of the symptoms depends upon the site at which the stone is impacted, or located, in the urethra, and also upon the size and number of the stones.

The diagnosis is made on a careful, accurate history, and physical examination. Many times in palpation of the urethra and perineum, the stone can be felt. In cases where it is located in the posterior urethra, the stone may be felt upon rectal examination. The next simple procedure is the exploration of the urethra with sounds or bougies. Many times the grating of the instrument against the stone can be felt. Urethroscopic examination is useful and helpful in not only establishing the correct diagnosis, but also to detect the presence of complications or associated pathology. Radiography, including urethograms, is invaluable in localizing the stone. Calculi in the posterior urethra often present greater difficulties from the viewpoint of the x-ray interpretation for the reason that they may be confused with true prostatic or vesical calculi.

The treatment of urethral stones is exceptionally variable, and depends entirely upon the size, location, and associated pathology of the

calculus. If the stone is lodged in a cavity or diverticulum, or extensive strictures are present, then it is necessary, of course, after the removal of the stone from whatever procedure, to correct these associated conditions. According to several writers, urethral calculi have a distinct tendency to recur. Perhaps one of the principal reasons for these frequent recurrences is due to the failure to recognize, or to properly correct the associated pathology at the time of the original operation.

In the treatment of stones situated in the anterior urethra, it is frequently only necessary to do a simple meatotomy, and then remove the calculus with an ordinary pair of forceps. The procedures become more complicated, however, if the posterior urethra is the site of the calculus, or if they are imbedded in a diverticulum or pouch. In such cases, several methods can be followed. First, an external urethrotomy; second, if the stone can be pushed back into the bladder a lithotrite can then be used to crush the stone. There are some authors who believe that the best treatment, especially for large stones, completely enclosed in the posterior urethra, is a suprapubic cystotomy.

Debenham in his treatment of 34 cases reported the following methods:

Calculus passed naturally	4
Removed with forceps per urethra	20
Pushed back into bladder and crushed	4
External urethrotomy	5
Suprapubic aspiration of urine	1

Jeck's procedure in his cases was:

External urethrotomy, perineal, in half of which an internal urethrotomy was also done	6
External urethrotomy in penile portion of urethra directly over stone	4
Suprapubic cystotomy	1
Meatotomy	2
Dilatation of urethra	1
Forceps	1

The stones varied from the size of a small pea to a large olive. He had two post-operative deaths.

The mortality from the removal of urethral stones depends upon the length of time the stone has been present and the degree of infection. Usually the larger the calculus, the more dangerous the risk.

The postoperative care should include, because of the frequency with which the calculi recur, regular periods of observation for at least a year or two, and treatments if indicated, such as passage of sounds, and the elimination of urinary infections.

SUMMARY

1. A case of primary urethral calculus is reported.

2. The etiology, pathology, and symptoms of urethral stones are considered.

3. The treatment of urethral calculi is reviewed, and the author's method in their case presented.

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HERPES ZOSTER

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Infections of the central nervous system are of interest to the general practitioner as well as to the neurologist. My interest follows through from clinical and pathological material in poliomyelitis in Boston in 1916, from cerebrospinal meningitis studied in military service both in this country and in France, and from a few of the early cases of encephalitis lethargica seen while in France. Special attention has been given at the Sanatorium to these three major acute infections, poliomyelitis, cerebrospinal fever and to epidemic encephalitis, the last in both its older and newer forms. Syphilis of the central nervous system is another infection of far-reaching clinical, social and economic importance.

There is one condition generally accepted as an infection, perhaps classified as minor, but which may give symptoms referable to major distress. Herpes zoster or in lay usage "shingles"

Paper read before Section in Medicine, Illinois State Medical Society, Rockford, Illinois, May 22, 1935.

is seen in the practice of every physician. Fox[1] states "Herpes zoster is named from its frequent location on the trunk which suggests a girdle. *Zoster* (Greek) and *zona* (Latin) signify a girdle as does the word *cingulum,* from which the common term 'shingles' is derived." It may occur over any nerve segment of the body that has skin distribution. The more severe symptoms and complications are more frequently seen with herpes of the cranial nerves, particularly the trigeminal.

It is, as stated above, generally accepted as an infection. Traumatic and toxic origins have been suggested but evidence points more towards infection "caused by an unknown filterable virus."[2] Joslin[3] describes a case of diabetes in which during an attack of herpes zoster the carbohydrate tolerance fell markedly. He says "This is interesting because it suggests the infectious etiology of the disease." We have seen one case of a similar nature where twice as much insulin was required during an attack to keep the patient sugar free. Rivers, in a discussion of filterable viruses and the nervous system states: "In spite of the fact that there is only suggestive evidence of the existence of a zoster virus and regardless of the conditions under which herpes zoster occurs the character of the lesions observed in the skin has induced a number of workers familiar with virus diseases to entertain the idea that it is caused by some kind of a virus."[4]

The pathology is an acute inflammatory reaction mostly in the posterior root ganglia or their equivalents, the Gasserian or geniculate ganglia. Head and Campbell[5] studied twenty-one autopsies and found hemorrhagic lesions in the ganglia in the most acute cases and some changes in them in all, sclerosis in older ones. Lesions have been found in the posterior gray columns of the cord. Muscular weakness and occasional atrophy indicate further extension has occurred. The pathological appearance both gross and microscopic resembles that of poliomyelitis, save for the difference in the part of the central nervous system involved. Therefore, the disease has been called by some posterior poliomyelitis. The histopathology is that of congestion of vessels, perivascular hemorrhage and lymphocytic infiltration. This infiltration also appears in the tissue of the ganglion. Degeneration of dorsal roots and peripheral nerves has been found.

Pathologic study of the skin lesions shows the vesicles to be deeply seated, usually unilocular and involving the lower rete and even the papillary layer. The cavities are filled with serum, leucocytes and broken down epithelial cells. Acidophilic staining of epithelial cells at the sides and base of the lesion add to the histologic picture.

The onset of the disease may occur apparently spontaneously, reacting like an acute infection in an otherwise healthy individual. Particularly is this the case in children and younger adults. It may appear in persons whose general health is below par by reason of other disorder. One patient who had had a breast removed for carcinoma stated she had more pain in a herpes attack than she had had during her entire hospitalization for her operation. We have seen it appear in one case following vaccination against smallpox and have known it to follow injection of typhoid—paratyphoid vaccine. The association of herpes zoster and varicella has been studied both clinically and experimentally by many observers. We have observed it in two cases of central nervous system syphilis following neoarsphenamine in one, tryparsamide therapy in the other. Arsenic has been mentioned as a causative toxic agent. Rivers (loc. cit.) says "The fact that viruses tend to localize in irritated tissues may also account for the relation that has been observed to exist between certain cases of herpes zoster and nerve injury due to chemical, physical or disease-producing agents."

The portion of the body most frequently affected is as the name implies the trunk. The segments of the cord from the second thoracic to the third lumbar are said to be the most frequently involved. The word "shingles" connotes to most of us a typical involvement on the trunk. There are often some general constitutional symptoms with fever, malaise and a moderate amount of prostration preceding the localizing skin eruption. Itching sensation or pain of neuralgic character usually precedes the appearance of the vesicles. They have a tendency to come out in crops. The first lot are apt to appear where the posterior primary, lateral branch of the anterior primary and the anterior branch of the anterior primary division of the sensory portion of the nerve trunk reach the surface. These correspond roughly to the paravertebral, posterior axillary and anterior axillary lines on the trunk

of the body. Eventually the whole area supplied by the nerve trunk or trunks may be filled in with the eruption.

Once a well defined collection of vesicles following a nerve trunk is observed the diagnosis is easy. The patient will present himself under such circumstances with the statement "I've got shingles. What am I going to do about it?" or "Can't you do something to stop this pain?"

There are some instances though where the diagnosis is not so easy. A case in point is that of a man 66 years old who has been under observation at intervals by one or another member of the Sanatorium staff for several years for a mild recurrent anxiety state. This was usually accompanied by gastrointestinal upsets associated with immoderate habits of eating. Last fall he appeared with the complaint of severe pain which started under the rib cage on the left and radiated towards the navel. He had had negative x-ray examinations and gastric analyses in the past. Yet there was at first some concern as to whether some serious intra-abdominal condition had been developing in the time since he had last been seen. The type and character of the pain and its distribution and the presence of two small vesicles in the left paravertebral area over the tenth dorsal distribution led to a diagnostic prediction of zoster. This diagnosis was received with considerable skepticism on the part of the patient and his wife but was confirmed by the subsequent progress of the situation. It has occasionally been possible by the neuralgic type and segmental distribution of the pain to predict the diagnosis but more often of course the cases are seen when well under way. However, these two characteristics have been extremely helpful in our experience. They have been of value not only for the diagnosis of the condition itself but in differentiating it from other possible conditions. An instance of this was in a case seen in consultation where the diagnosis of an acute appendicitis or a renal colic was in doubt in a young adult with a gastrointestinal history. There were the constitutional symptoms of nausea, fever and malaise, the history of previous digestive disorder. There was tenderness in the right lower quadrant but the radiation of the pain was around from the back. The nerves supplying the skin area in the lower quadrant are from the 11th and 12th dorsal segments. When the patient was turned on her back a little crop of vesicles was observed, the diagnosis of zoster was made and confirmed. Now with the relative infrequency of zoster as compared to acute appendicitis in young people this is not of great significance but in this particular instance it did count for something.

Pleurisy, intercostal neuralgia and angina pectoris are conditions to be differentiated in herpetic involvement of the segments of the upper dorsal cord in so far as the pain is concerned. Aside from the more generally accepted symptoms and signs of pleurisy and angina emphasis would again be placed on a reiteration of the description of neuralgic type and segmental distribution of pain of herpes zoster. As for intercostal neuralgia many disorders are ascribed to that heading. It is more often the patient's than the doctor's diagnosis in our experience. Histories of some of these cases have led us to believe that we are dealing with persistent neuralgia pain after an acute attack of herpes zoster in which the eruption was slight and not considered a part of the disorder.

The skin lesions themselves may at times present some consideration for diagnosis. Herpes zoster is given considerable space as a skin disease in the text-books of dermatology. Fox (loc. cit.) says "it is a fairly common disease comprising about one-half per cent. of all skin diseases seen in the United States." That the local lesions are not of trophic origin but are a part of the disease process is brought out by Rivers in the discussion of his paper where he states "The lesions in the spinal cord and in the skin are caused by the same agent, a virus." This fact has not been generally recognized.

Differentiation from other skin conditions is easy on the trunk. If there is difficulty it is more apt to be when the face, scalp or ears are involved. We have seen herpes zoster of the ear and of the scalp called erysipelas and of the ophthalmic and mandibular divisions of the trigmenial called localized skin infections.

As stated previously the most common location is the trunk. Our list of cases includes, however, almost every area of sensory distribution over the body. The ophthalmic distribution of the trigeminal is always a serious place for zoster on account of two possibilities, first corneal herpes with resultant scarring and visual impairment, second severity of pain and toxic mental reaction. We have seen two cases with toxic psychoses

directly resulting from this. Herpes zoster involving the geniculate ganglion of the seventh nerve aids in the study of the sensory distribution of this nerve. It supplies the skin on the back of the auricle. When there is unilateral involvement with typical lesions appearing on the skin of the external ear on one side and when there is pain the diagnosis of herpes zoster involving the vagus nerve is justified. One case of this type showed dysphagia and bradycardia as well. Bilateral herpes of the ear is usually herpes simplex and is not associated with pain. Affection of the sensory portion of the great occipital nerve has been seen twice.

The extremities are infrequently involved but cases including branches of the brachial, lumbar and sacral plexuses have been seen. One cast of interest in a woman with mediastinal tumor involved the lower sacral nerves supplying the bladder. Although there was marked vesical pain and desire to void the patient had to be catheterized. The question of metastasis of the tumor to the sacrum with nerve root involvement naturally came to mind. Eventual opportunity for post mortem failed to show metastases in that region.

The skin lesions dry up in from a few days to two weeks. Scarring depends on the depth of the vesicles and whether or not there has been secondary infection. Neuralgic pain persisting after the skin condition has entirely disappeared is the most frequent residual. This is especially true in older people who have some underlying chronic disease. The pain may last for months.

The management of herpes zoster is symptomatic as described in most text-books. Perhaps the measures here mentioned are likewise symptomatic. However, they have seemed to be of more benefit than measures previously used. Ruggles in 1931 wrote of the use of sodium iodide intravenously in herpes zoster.[6] He reported its use in 15 cases with favorable results. We have employed it in practically every acute case seen since that report came to our attention. Where we have not used it for what appeared sufficient reasons we have often wished we had.

Our custom is to give one gram in ten per cent. solution intravenously the first day, then two grams each day for four or five days. The results have been quite satisfactory though no control of alternate cases has been carried out. We have the impression but would not want to state it more positively than as an impression that the vesicles have dried up more promptly and the pain has been lesesned in the cases where sodium iodide has been used. It has also been used, though with less apparent benefit in late cases.

Pituitrin has been reported by many to be of value in prompt relief of pain. Some reaction occurred in two cases where it was used. The results with the iodide were so satisfactory in acute cases that pituitrin has not been further employed.

As local measures many agents have been recommended. For the last few years we have employed zinc oxide ointment or paraffin sprayed on the vesicles. The use of paraffin gauze does away with sticking of dressings where protection from clothing has been necessary. Small pieces or strips of this have worked very well.

Simple analgesics such as sodium salicylate or amidopyrin are prescribed at first, later are usually not necessary. Codein has occasionally been employed where pain has been severe.

Most cases are ambulatory when seen. Those with cranial nerve involvement, particularly the ophthalmic portion of the trigeminal, should lay up till the acute stage has subsided. Those with an underlying disorder should of course receive treatment for their primary condition as well as their herpes zoster. They may already be bedfast. If not, the appearance of a herpes of average severity justifies this limitation of their activities.

Knowledge of virus diseases as a whole has increased greatly in recent years. As this knowledge extends we will learn more of these virus infections of the nervous system among which is classified herpes zoster.

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DISCUSSION

Dr. Sidney D. Wilgus, Rockford: I consider it an honor to be asked to open this discussion. Dr. Nor-

bury has covered the subject itself so thoroughly that I think it is difficult for anyone to discuss the various aspects of the paper with any added profit.

However, there are certain points, more or less philosophical, which might be advanced as matters of generel interest bearing on the subject of diseases of the central nervous system. Herpes zoster is generally accepted as one of the infections of the central nervous system. As Dr. Norbury has said, the pathology is very similar to that of anterior poliomyelitis only this time it is located in the posterior ganglia and analogous situations throughout. Inasmuch as one is accepted as an infectious disease, it would seem perfectly logical that the other be taken as infectious as well. This brings up the point that there are areas in the central nervous system more easily infected by single forms of germ life than others. In other words, certain diseases are more or less selective in the point at which they finally show themselves. That is so with many diseases of the central nervous system. For instance, in the tuberculosis of childhood with meningitis, the base is selected; in anterior poliomyelitis it is the anterior motor cells; here it is the posterior ganglia. Various strains of spirochetes pick various portions of the central nervous system in which to do their damage; the virus of influenza selects the region of the red nuclei and the black nuclei and the aqueduct of Sylvius to work its damage. These facts are very interesting.

These troubles are suggestive of or show a tendency to biological local structural defects of the central nervous system. Although grossly speaking the basic structure of the central nervous system consists of cells and fibers, there are areas that seem to be more open to specific attacks than other areas. The selectivity may be due to the qualities of the viruses themselves or to biological differences in the different areas of the central nervous system or both. Now if viruses and toxins are capable of selecting their own foci, why can we not suspect that less intense but more prolonger toxic conditions may have a bearing on the development of various organic changes in the central nervous system such as those, for instance, that seem the basis of the decline of advancing age? A phantasy perhaps, but an interesting one.

The march of medicine is not over and at some not distant date the branches of chemistry, bacteriology and biology will solve this problem as it is solving other problems day by day. Curiosity in medicine is insatiable.

Question: I would like to ask if there are any cases of herpes zoster where there is no pain?

Question: I would like to ask about the relationship of age to pain?

Dr. F. G. Norbury, Jacksonville (closing): I am extremely grateful to Dr. Wilgus for his courtesy in coming here and for his approach to this subject.

The reasons for the origin of infections as well as other disorders of the nervous system I think are the things that arouse our curiosity and stimulate our interest, and give us something to think about in the matter of approach to such a problem. Our curiosity in the long run will be helpful to us and to our patients.

In regard to pain, I have not had occasion to see any cases without pain, nor do I recall of having read of any cases of true herpes zoster without pain. There are other herpetiform conditions that occur without pain and I do recall reading some place, as well as observing, the situation I spoke of where bilateral herpes of the ear occurred without pain, and the statement was made that if there was pain it was unilateral.

As to the relationship between age and pain, in our experience the pain is greatly increased the older the patient. Many young people break out with shingles and are not disturbed at all. It also appears that if there is some underlying disturbance, as in the incident I mentioned of carcinoma of the breast with herpes, the severity of the pain, because the patient's threshhold is lowered, is more apparent.

Just one thing else in conclusion, if there comes any question of diagnosis, I think the thing that has helped me most is that when there is neuralgic type of pain following segmental distribution, then think of herpes zoster.

THE REMOVAL OF SUPERFLUOUS HAIR BY MULTIPLE ELECTROLYSIS

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Superfluous hair is not an uncommon disorder in women. In proportion to the luxuriance, prominence and site of the growth, it is a blemish to feminine appearance and beauty, and thereby presents to women thus afflicted a serious problem and impediment in business, society and the home. The condition may produce pronounced psychological and emotional reactions such as a desire to remain in seclusion, mental depression or melancholia, and may be a handicap in securing gainful employment, social prominence or a desirable mate.

The medical profession has heretofore displayed a common disregard and lack of attention to this condition, with the result that women so affected often resort to so-called "beauty specialists" or accommodating druggists for treatments or relief. At their best such ministrations are unskilled and unsupported by proper training and knowledge. Unapt or improper electrolysis and harmful depilatories often cause unsightly scarring, eczematoid dermatitis, follicular infection, or transformation of downy hair into coarser hair.

One of the oldest methods of removing superfluous hair is by means of chemicals. Pastes of barium or calcium sulphide are commonly em-

ployed. The objection to their use is that they require frequent repetition and in time set up an eczema of the face or armpits, often followed by a crop of boils.

The removal of superfluous hair by roentgen therapy was suggested by Freund[1] of Vienna in 1897. This method became popular and was used extensively for a while. It was soon realized, however, that to be successful it was necessary to give exposures of x-ray which were injurious to the skin. Often many years after the treatment, telangiectasia and atrophy of the skin have resulted. Since improvement is very uncertain with safe roentgen exposures, the method has been entirely disregarded by the medical profession but is still being employed by advertising institutions.

The use of pumice stone has been found helpful by Schwenter-Trachsler.[2] He reported a series of cases in 1912 in which pumice stone was rubbed twice daily into the shaved skin. This

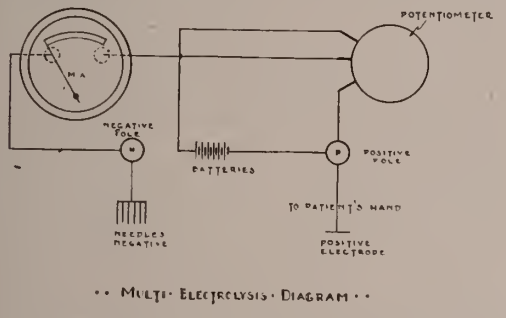


Fig. 1. Showing the flow of electric current from the batteries to the electrodes.

method may have to be continued for over a year. It is not a popular method and has not received much support.

Many favorable reports have been recorded with the use of diathermy in the removal of superfluous hair. H. Bordier[3] of Lyon, France, has been using this method since 1923 and states that electric high frequency has many advantages over other methods.

Single electrolysis for the removal of ingrowing eyelashes was introduced by Michel in 1875.[4] In his report he suggested its use in superfluous hair of the face. This method consists of introducing into the hair follicle a single needle attached to the negative pole of a galvanic current, the positive pole of which is connected to a large well moistened sponge electrode. In experienced hands it has proven quite successful, safe and free from deleterious after effects. The disadvantages are that relatively few hairs may be removed at a sitting because only one hair follicle may be treated at a time and that the method is quite painful because of the repeated shocks at each make and break of the current and because it requires a high milliamperage to treat each hair individually.

To overcome these disadvantages multiple electrolysis was introduced and it has become quite popular in the past decade. In this method several needles are attached to the negative electrode and the positive electrode is connected to a metal cup containing water in which one hand of the patient is immersed. Many needles are on the market; some are sharp, others bulbous; some are made of platinum, others of steel. I prefer to use fine, sharp, short, platinum needles because with them one can more easily enter the follicles with narrow mouths frequently encountered. A good source of illumination is essential; the light should be adequate and should not give too much heat. To magnify the mouth of the follicle binoculars are used.

Before inserting the needles one must bear in mind that the follicles have an oblique position in the skin and therefore it is necessary to follow the direction of the hair follicle. If this is done, the needle may be gently slipped into the follicle without any force. From four to six or more needles which come from the negative pole are inserted into the hair follicle, depending upon the sensitivity of the region treated, and one hand of the patient is immersed in the metal cup attached to the positive pole. The potentiometer regulating the flow of current is adjusted so that the circuit is completed and the proper milliamperage furnished. For four needles about one milliampere is usually sufficient; for six needles, about one and one-half milliampere, etc. In from five to ten seconds bubbles of hydrogen appear about the mouth of the follicle. From ten to twenty seconds is sufficient to destroy the average hair follicle. An attempt is then made to remove a hair from one of the four or six follicles treated, and when a hair is extracted the needle to that follicle is withdrawn and inserted into another follicle. The average treatment may be continued for a half hour or longer. No local anesthesia is required.

If one has access to a direct current supply

one may utilize this source of energy after it has been reduced by a suitable rheostat. Since direct current is usually not available, dry batteries are popular. Six batteries joined in series are sufficient. The connections shown in the diagram (Fig. 1) have been found to deliver the most uniform current.

SUMMARY

The advantages of multiple electrolysis are as follows:

1. Less milliamperage is necessary to destroy the follicle.
2. There is less danger of scarring or other complications such as dryness or atrophy of the skin.
3. The method is more rapid, more can be done at one setting.
4. It is less painful than single electrolysis because once the flow of the current is started there is no repeated make and break of the current.
5. In comparison with the report cited on diathermy multiple electrolysis does not produce roughness or dryness of the skin and is not followed by recurrences.
6. The apparatus also offers the advantage of being so constructed that it is impossible to reverse the connections and attach the needles to the positive pole which tends to produce scarring and permanent pigmentation if a non-platinum needle is used.

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OBSERVATIONS ON THE PUBLIC HEALTH OUTLOOK

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If an observing person were to lift up his eyes to the health horizon today, the things that would strike his vision are apt to depend very largely upon the direction in which he looks. If his face is toward the east, from which flows in penetrating waves the bright sunshine of newer knowledge, he may feel abundantly justified in predicting fair weather for a long time to come. If his gaze is to the west however, where hang the thunder clouds of economic chaos and ignorance that cast threatening shadows across the stream of light, he might expect stormy weather ahead. If he looks to the south, with its mist of human inertia, or to the cold north where shines the star of steadfast purpose in the application of knowledge already at hand, his reaction would tend toward pessimism or hope as the case might be.

The outlook with respect to tuberculosis fits exactly into this picture. On the one hand, we find an abundant store of knowledge to which new discoveries and ways of utilizing knowledge are constantly added. We see in statistical reports for recent years evidence of a steady decline in mortality. To look only in this direction, there seems to be no obstacle in the way of continued progress and continued improvement, until the day when tuberculosis would cease to be a problem of substantial importance.

Another view casts shadows of doubt upon the prospects of rapid gains against tuberculosis within the immediate future. During the first quarter of 1934, the diagnostic laboratories of the State Department of Public Health were called upon to examine for tuberculosis a greater volume of specimens than in any previous period of like duration. Compared with the first quarter of 1933, laboratory tests for tuberculosis were up eleven per cent. Of even more significance is the fact, that the proportion of these tests found to be positive was nearly as great as last year.

Likewise, case reports of tuberculosis were substantially higher in the first quarter of 1934 than in the corresponding period of the year before, an increase of about 7 per cent. For February and March of this year, 18 per cent. more cases were reported than in those months of 1933. Whether or not these trends are temporary and transient, remains to be seen. They at least suggest a halt in the progress made against tuberculosis during the last decade.

In Pennsylvania, according to a report from the State Department of Public Health, the incidence of tuberculosis among certain groups of children examined by the field staff of that

Read before the annual meeting of the Illinois Tuberculosis Association, Mt. Vernon, Illinois, April 30, 1934.

Department was 33 per cent. greater in 1932 than that found among similar groups two years earlier. This greater prevalence the report attributes to malnutrition, and other untoward effects of the economic depression.

During the last three months in Illinois we have experienced a higher prevalence rate of scarlet fever and whooping cough than in the corresponding period of any year for more than a decade. We are now in the midst of an epidemic wave of measles, the heaviest in several years. Is it too much to believe that the extensive prevalence of these diseases may open up the avenues for tuberculosis? Can we say with confidence that these epidemic conditions are but the manifestations of the natural cyclic incidence curves of contagious diseases, and have no relation to the tardy influence of the economic depression? Regardless of the causes of these unfavorable trends, they are conditions that must be considered in the public health programs of the immediate future.

If we may now examine the history of the anti-tuberculosis movement in Illinois, there appear certain factors that are not overwhelmingly encouraging. At one time the hope of progress against tuberculosis was pinned to the sanatorium movement. Doubtless the theory was, and is, sound in almost every respect. While the movement was in the ascendancy, 16 county and 2 municipal sanatoria were constructed or acquired. Perhaps one-third of these have been equipped and operated, so that results are beginning to justify the high hopes and expectations of those who labored in season and out to bring them into existence.

These sanatoria which have become the centers of well planned and wisely executed programs, are found in most cases to be woefully inadequate to take care of legitimate demands of the tuberculous population. Those that fell into ways of indifference with respect to equipment, personnel and programs, have become a drug and burden upon the communities that sought through this movement to solve their tuberculous problems. At the very moment moreover, when by every rule of logic and reason, the sanatorium facilities and the tuberculosis program should have been stepped up, retrenchment was the order of the day. When social conditions and unemployment increased the liability of tuberculosis, the pressure of unfavorable economics impelled a reduction in the medical and nursing services, and a decrease in sanatorium facilities.

What I have said refers merely to the clouds and mist that fret the horizon, and lower the visibility of progress with our present program in this important field of service. Students of tuberculosis who have earned the right to speak with authority declare, that if nothing more is ever learned about this disease, mankind can take the knowledge now at hand and by proper application completely eradicate the disease. This statement is a challenge of the first magnitude. We point with righteous pride to the falling death rate as evidence of the fundamental soundness of our program. In the light of newer knowledge and past experience however, some changes and modifications may be necessary in order to go forward with satisfactory speed toward the goal of complete eradication.

Two improvements in the general set-up and program suggest themselves. One is, the possibility of vaccination. The other is a closer, stronger and more comprehensive organization of the public health agencies and workers of Illinois. With respect to vaccination there has been in this country a divided opinion. Evidence has accumulated however, that indicates great promise through the application of this procedure.

About thirty-two years ago, Calmette and Guerin undertook the preventive research with BCG. Up to 1921, they practiced a multitude of experiments on all kinds of sensitive animals and had become, as a result, quite convinced that BCG was not only harmless but also capable of preventing tuberculous diseases. It was in 1921 that the vaccine was first given to a human. It was administered to a baby, newly born from a mother dying of phthisis. From 1921 to 1924 many other infants were vaccinated with excellent results.

The procedure gained progressive acceptance both in France and elsewhere. Since 1924 especially, it has made remarkably rapid strides, until in 1932, in France *one baby out of every five born was vaccinated.* It is not in France alone however, that the procedure has become popular. It has gained large acceptance in many other countries, particularly in the French col-

onies, the Latin-American countries, and other countries in which French influence is a determining factor.

According to Calmette, the tuberculosis mortality in vaccinated children is greatly decreased. More interesting still, he found that the general childhood mortality is much less in vaccinated than among unvaccinated children. In his figures he quotes a total of 443,658 children vaccinated in forty-six different countries outside of France. From this huge total of approximately half a million babies he quotes a general mortality for vaccinated children of 7.9 per hundred against 15.3 per hundred for non-vaccinated children. In other words, there was a reduction in favor of the vaccinated children of 50 per cent.

It must be recalled that we are speaking of general mortality, not that caused by tuberculosis only. According to Calmette, the mortality in France from tuberculosis among non-vaccinated children born of tuberculous mothers, or raised in tuberculous surroundings, is 15.9 per cent, as against 3.4 per cent. for the vaccinated.

In Rumania, from a study of 60,000 vaccinations and controls, the mortality from tuberculosis in contact controls was 25 per cent. in the non-vaccinated cases, as opposed to 1.3 in the vaccinated infants living under similar conditions.

In sixteen foreign countries exclusive of France, where the number of children vaccinated ranges from 600 to 100,000, the general mortality rate among the vaccinated, whether the number is large or small, has been uniformly and substantially lower than that among the unvaccinated.

A beginning has been made in our own country. The experience of Park in New York City has apparently been no less satisfactory than that in other countries. In reply to my request two weeks ago Dr. Park wrote to me as follows:

"Our results with BCG vaccination have been very favorable. There has not been the slightest evidence of harm, and definite resistance apparently develops against tuberculosis. As you know, we practically alternate our cases and give the same instructions to both sets. The death rate, therefore, is very low, only three per cent. during the first year in the controls, and 0.5 per cent. in the vaccinated."

More recently the Board of Directors of the Chicago Municipal Tuberculosis Sanitarium has decided to undertake a program of vaccination. Dr. Tice, its president, and Dr. Hruby, the secretary, observed the procedure and investigated the results in France personally. They were convinced that a large scale application of BCG vaccination in our American communities would have a very definite influence in solving our tuberculosis problems.

Convinced of the practicability and feasibility of the procedure they set about organizing a program. The first step was to send to the Pasteur Institute in France a qualified physician, Dr. Rosenthal of Chicago, to study the problem. Working under the eyes of Calmette and other pioneers he acquainted himself through observation and practice with every detail, not only with the bacteriologic routine, but with the various clinical applications as well.

Dr. Rosenthal arrived back in Chicago about a month ago, bringing with him a supply of cultures. He is installed in a laboratory in the University of Illinois Medical School, completely isolated, with no connection whatever with any other laboratory unit. He and his assistants alone are allowed to go into the laboratory on any pretext.

For the next six months, the laboratory work involved in preparing the BCG vaccine will go forward with infinite care. At the end of that period, after the cultures have been thoroughly tested with animal inoculation, a program of clinical application will begin.

The vaccination program in Chicago will be undertaken as a practical means of attacking the tuberculosis problem along with the inadequate, but excellent sanitarium facilities, and the extensive medical and nursing program.

In that city it seems that expenditures for sanatorium and hospital facilities for tuberculous patients have been about all that the budget will bear. There is no prospect that these funds can be greatly increased in proportion to the need. At the same time, the number of beds available, fall far short of immediate requirements to satisfactorily meet the situation. A recent report from the Sanitarium Board indicated that there are 11,000 patients who need sanatorium care, and that the total number of beds available in all institutions is 2,200.

A similar situation prevails down-State. For the greater part of this area, there are no public sanatoria facilities. Where sanatoria exist, and

effective programs prevail, the facilities are wholly inadequate to meet the needs. This situation recommends vaccination as a way out. I submit the proposal for your earnest consideration.

With respect to an improvement in the organization of public health agencies much can be said. In other fields of endeavor strong Statewide organizations have been able to secure desirable legislation and public appropriations much easier than in the field of health. Social workers, for example, seek and obtain legislation almost at will. Backed by the Illinois Conference on Social Welfare their demands for laws, and for money, carry a weight that is seldom disregarded. The farmers, the veterans, the municipalities, the beekeepers, undertakers and anti-vaccinationists, make demands that result in new laws, and often in liberal appropriations. The voice of labor never goes begging for an audience of the legislative ears.

The public health forces are the one outstanding example of unorganized effort in Illinois in the field of general interests and public service. At the same time they have the most useful and the most desirable commodity in the world to offer in return for the support of their program. In closing I also therefore submit the remedying of this, as a proposal for your consideration.

ROENTGENOLOGY OF THE ALIMENTARY TRACT

M. J. Hubeny, M. D.

CHICAGO

Since the discovery of the x-ray in 1895, many technical improvements in equipment have made it possible to use this apparatus in ever expanding circles; more precise methods of investigation made possible a greater clarity in diagnosis; diseases and their expression were capable of better analysis and assembly, and an experience table was promulgated so that some of the data and phenomena were conclusive, some were supportive, some vague and not understandable, while negative values were sometimes as valuable as positive ones, in this manner positive hypotheses were ruled out by definite negative findings. But even in spite of the wonderful apparatus, judgment is a human attribute and is distinctly individualistic, so in the final analysis the value of any diagnostic procedure is dependent chiefly on the ability of the individual. This dictum also holds true in Roentgenology and especially in that phase which concerns the alimentary tract.

From embryonal to mature development, the alimentary tube undergoes some interesting changes that involve a high degree of specialization of a physical and physiological nature, including the development of accessory structures such as teeth, salivary glands, biliary system and pancreas. As a consequence a wide range of disturbances is possible and necessarily, many technical procedures have been developed.

Unfortunately in the performance of these investigations a large investment in apparatus is necessary, the cubic area is large and consequently, an actual expenditure of money is unavoidable. Under existing financial conditions certain practices have become firmly intrenched and unfortunately condoned by certain medical men, who are members of organized medicine. One of the most flagrant has been the selling of a definite number of films such as four or six, plus a cursory fluoroscopic examination under the pretense of thoroughness; this, on the surface is dishonest, for how can any service be stereotyped, much less a service dealing with so many phenomena and their vagaries? Medicine is a profession; a profession is a trust which has a keen sense of public responsibility and it is the writer's conviction that, as economic conditions reach the stage of better equilibrium, there will be evolved a higher ethical standard in all activities, which has at all times been the objective of right minded people.

In approaching this problem, it is definitely accepted and understood that the roentgenologist realize his contribution without enthusiasm or exaggeration and that because of the magnitude of medical services, team work is essential; in this manner he will receive wholesome acceptance by his colleagues in other branches of medicine. In pursuance with this policy, the roentgenologist should be consulted as to the procedures necessary, their method of application and permitted to make suggestions as to sequence, continuation or repetition of observations, as it is rather difficult to make conclu-

Read before Joint Session Illinois State Medical Society, at Rockford, May 23, 1935.

sions on inadequate, confusing or simulating signs and symptoms.

The movements designated chiefly as peristalsis decrease in frequency as we go caudal-ward consequently as we reach the colon, more especially the iliac and pelvic colons, we note a relatively dormant activity. Because of this, various contrasting media are used; they may be opaque or radiopatent; the method of administration might be oral, rectal or intravascular; they might be used in varying sequence or alone according to indications. It might be permitted to state at this time, that the roentgenologist be informed of the salient symptoms or clinical possibilities, which should be used by him without bias or prejudice.

This paper will not be as comprehensive or voluminous as its title would lead you to think, for this subject is almost inexhaustible. It will touch chiefly with certain critical areas, areas of predilection, injecting a personal observation or an accepted premise.

Teeth: In 1919 the writer expounded his thoughts on the value of the radiogram and decided that it was not conclusive as to whether or not an infection was present. It is the best method known today with the questioned tooth in situ, but it does not go far enough. His deductions were based on clinical findings. Later, Russel Haden approached the problem in a different manner. He extracted over thirteen hundred teeth as surgically clean as it was humanly possible and cultured the roots in suitable media. He then grouped them into five classifications. First, positive x-ray findings, no bacteria present. Second, equally positive x-ray findings, many bacteria present. Third, a devitalized tooth involved in high grade alveolar absorption, due to pyorrhea, no peri-apical involvement, no bacteria present. Fourth, a vital tooth involved in high grade alveolar absorption due to pyorrhea, no peri-apical involvement, many bacteria present. Fifth a small retained root with questionable osteoporosis in its vicinity, many bacteria. This demonstrates quite definitely that the dental radiogram is not incontrovertible evidence of the presence or absence of infection. Since this is true, and since Rosenow has proved that a granuloma is always infected, it is quite unsafe to retain dead teeth even though the radiogram shows nothing.

Peculiarly enough, frequently, there is a total absence of pain. This gives one a sense of false security, however, it has been the experience of all of us that the value of pain, which is not to be disregarded, should not be overemphasized.

The determination of the rôle of the radiogram is of importance, for we are fully aware of the consequences of infections and their products and the necessity of removing all foci of infection, if possible.

Gall-bladder: In the routine examination of the gall-bladder, a preliminary examination is always desirable to demonstrate the possible presence of a stone. This may be positive to the extent of about 35%.

Cholecystography, initiated by the work of Graham, has now taken its place as a routine method of examination when the biliary system is at fault. Its diagnostic accuracy has been developed to such an extent that it is unusual to perform an operation prior to cholecystographic study. The method of administration is of secondary importance, since the drug and management of the patient has been agreeably perfected. However, as Kirklin has stated, "Choice between oral and intravenous administration of dye is not involved, for I am convinced that the oral method if properly applied, is ordinarily as reliable as the intravenous method. The oral method is usually preferred and easily carried out."

Unfortunately there is a general tendency among physicians, not engaged in roentgenology, to consider roentgenological diagnosis simple and its results almost automatic. This, of course, is not so, for it may be definitely stated that the accuracy of cholecystography depends directly upon the careful attention to details, as well as upon the roentgenologist's experienced judgment in interpretation.

In gathering statistics the following is a fair evaluation. General accuracy of all cholecystographic diagnoses, 90%. Findings of poor functioning or non-functioning in 97% of the cases in which stones were found. Gallstones were manifested as dense or translucent areas in only 40%. Non-calculous cholecystitis showed evidences of disturbed function in approximately 80%, whereas in 20% the gall-bladder was apparently normal.

Normal visualization is apt to be misleading which is contrary to expectations. In the experience of Giles with 381 cases 86 showed normal

response. Twenty-six of these had calculi and 60 were non-calculous. Stones were demonstrated in 12 of the 26 cases having normal response, and 19 of the 60 cases of non-calculous cholecystitis showed deformity of the gall-bladder shadow, leaving 55 cases in which no disease of the gall-bladder was reported by x-ray examination, a general diagnostic error of 18 per cent.

Alimentary tract: This tube or canal is surrounded by many structures. Its length of about thirty feet requires alert observation, because of extra-alimentary or intra-alimentary causes, either reflex or due to pressure. Among the former must be mentioned hypertrophic spondylitis with the possible production of radiculitis as described by Bechterew. The symptomatology might simulate esophageal, gastric, duodenal, biliary, pancreatic or colonic disease, or a dilated aortic arch may press on the esophagus, or a mediastinal neoplasm might produce pressure defects. Intrinsic disease processes are exhibited by actual organic defects, spasms or hypo-or hypermotility. With these manifestations, mobility and pain on pressure may be elicited, for it is implied that thorough fluoroscopic and radiographic procedures are utilized. It should be stated at this time that there are many instances where many films are necessary to record small manifestations of organic changes which cannot be observed fluoroscopically and whose repetition and constancy are vital observations.

An interesting and confusing observation is occasionally noted as the opaque meal enters the lower pharyngeal cavity; the meals seems to accumulate in the valleculae for a brief interval, which in cases of marked inanition, become accentuated because of lack of fat. These are not to be construed as diverticulae or pathological sacculations.

Time will not permit an extensive discussion of gastric ulcer or carcinoma, however, the roentgen examination is invaluable in these cases. The surprising thing is the magnitude of a lesion in the absence of many subjective symptoms. As stated earlier in this paper, clinical history and other laboratory methods are to be considered and evaluated, but one is frequently surprised at the size of the lesion which is at such variance with other findings. We know of the unreliability of anemia, achlorhydria, anorexia, nausea and vomiting; also, we are aware of the protean character of pain, especially referred pain.

Bolton has made some interesting observations on referred pain from the stomach and he deducted that certain points of tenderness elicited by light pressure over areas in the mid-line between the sternum and umbilicus might be due to gastric or duodenal ulcer or painful gastric neurosis, and also, that direct deep pressure on the ulcer area during fluoroscopy was more reliable, thereby ruling out a gastric neurosis.

It is frequently impossible to differentiate between ulcer and cancer and deductions might frequently be inferred according to the location of the lesion and its extent. The pylorus is the most frequent location of cancer, while the mesial portion of the stomach is mostly involved in ulcer; the cardia is more frequently involved in carcinoma and carcinoma is inclined to be more diffuse than ulcer.

Duodenal ulcer can be diagnosed with a satisfactory certainty, although duodenitis and chronic intermittent duodenal obstruction occasionally confuse the issue by virtue of mucosal patterns and puddling of the second and third portions of the duodenum.

Appendicitis: The chronic, low grade, recurrent form of this affliction is very prevalent and surprisingly overlooked; the symptoms are frequently bizarre, atypical and consequently misleading. Keith in his appreciation of the kinetic zones, and their relation to one another, realized that they resembled the semaphor system of the railroads, always transmitting impulses to other remote, but related zones or areas; the appendiceal area is almost like the watch tower, always sending signals to other areas, thereby being an arch deceiver. The detection of this disease is a relatively simple process and is primarily dependent on the elicitation of pain on pressure over the appendiceal area. There are other indirect signs, but they are confirmatory rather than diagnostic. The opaque meal will visualize the cecum and occasionally the pathologic appendix and will assist the surgeon in orienting the structures, for it is well known that the appendix may be located in areas far removed from McBurney's point. Most naturally care must be exercised not to overlook a kidney or ureteral stone, ovarian or adnexal involvement which may simulate a pathologic appendix.

Colon: This structure may be visualized by an opaque meal, an opaque enema and insufflation with air after attempted evacuation of the

opaque enema. Motility is best determined with an opaque meal. An enema is superior in the determination of indurations, redundancies and reduplications, also in the observation of the various forms of ulcerative colitis, whether diplostreptococcic, as defined by Bargen and Weber, or the tuberculous or amebic dysentry form, although the latter is quite difficult to recognize. Tuberculous infections in other areas, such as the lungs, will help to make a differential, while an examination of the stools for organisms will be of material assistance.

Migratory cecums, anomalies due to lack of peritoneal rotation and descent are interesting and allergies due to infections, foods and deficiency states are just emerging into a vast field for intense investigation.

DISCUSSION

Dr. Ben Hughes, Evanston: I believe that the work of Haden and Rosenow only confirms the work accomplished by Dr. Hubeny and the opinion that he expressed many years ago, namely, that whether the x-ray picture gives a positive or a negative finding the general health of the patient, in most instances, is benefited by the removal of devitalized teeth. In other words, a negative x-ray picture of a devitalized tooth does not clear this tooth of infection and many times cultures of such teeth (negative in the x-ray films) are harboring the most vicious types of organisms.

I like to look upon the roentgenologist as an expert medical consultant in his particular field and for the best results both for patient and referring physician I believe that the case under discussion or "in for diagnosis" should be clinically discussed by the roentgenologist and the referring physician.

The preparation of the patient and the technique of taking the pictures should be entirely left in the hands of the roentgenologist and I believe that if we ask the roentgenologist to give his opinion based upon looking at a plate or two we are not getting the full benefit of his ability and skill.

There is no doubt but that the x-ray is one of the most valuable diagnostic procedures which we have today. It helps us to see what is going on within the patient's gastrointestinal tract when such would be impossible by any other means now in use.

We are all familiar with instances in which the consulting roentgenologist has saved the surgeon the embarrassment of operating on a suspected case of acute appendicitis when the x-ray pictures reveal a stone in the right ureter, or where the x-ray findings showed a pneumonic process in the lung.

Consider, too, the great value of the x-ray in the patient with a clinical history of peptic ulcer, seized with severe pain and collapse, the x-ray shows free air under the diaphragm, proving the diagnosis a perforated ulcer.

It is valuable in acute obstruction and usually a flat plate of the abdomen is sufficient without the injection of any barium enema.

In the more chronic cases a thorough and complete study of the gastrointestinal tract frequently brings to light findings which are more or less startling to the clinician for instance, a transverse colon lying between the liver and diaphragm or a mass in the right upper quadrant with or without free air under the diaphragm and with or without diverticulitis, such as we find in sub-diaphragmatic abscess.

The x-ray is of inestimable value in locating diverticula or areas of diverticulitis anywhere along the gastrointestinal tract, also in differentiating the various types of ulcerative colitis.

We know, too, that there are many instances in which a gastrointestinal lesion is suspected but the x-ray studies reveal pathology in the vertebra, possibly a malignant growth or an osteoarthritis, which causes the referred symptoms in the abdomen.

As clinicians we must give the patient every possible help which is available from a diagnostic and a therapeutic standpoint and I would make a plea for more and better teamwork on the part of both the roentgenologist and the physician.

Dr. J. P. Simonds, Chicago: Dr. Hubeny's paper rightly emphasizes the necessity of expert advice on the highly technical phases of Medicine. This applies not only to the making and interpretation of x-ray plates, but also to other forms of laboratory work. I have had occasion, as Chairman of the Committee on Medical Education in Hospitals, to collect statistical data pertaining to hospitals in Illinois. In 1934, only 50.3 per cent. of our hospitals had x-ray departments; and of these only 29.7 per cent. had M. D. directors. In most of our hospitals, therefore, x-ray films are made by a technician or a nurse whose knowledge of anatomy and of the roentgenologic problems involved is very limited, and are interpreted by an internist or a surgeon whose knowledge of such highly technical matters is almost equally tenuous and meager. In the same year, 79.4 per cent. of hospitals in Illinois had some sort of clinical laboratory, but only about half of these had M. D. directors. In other words, in more than one-half of the hospitals in this state the most highly scientific and exact part of the practice of medicine is done by mere technicians of more or less doubtful qualifications and without any adequate supervision. This state of affairs is not conducive to the highest type of practice of Medicine.

Dr. Don C. Sutton, Chicago: Dr. Hubeny mentioned arthritis of the spine as a cause in the production of abdominal pain. Ellis Kerr, in the *Archives of Internal Medicine* six or seven years ago, had an article in which they covered all the disease conditions which might be simulated by such arthritic pain—angina, pleurisy and various abdominal conditions. It is not infrequent to see patients who have been operated upon for gallbladder, appendicitis, or kidney disease, who have pain caused by the posterior roots being pressed upon by an osteo-arthritis of the spine.

BACKACHE IN WOMEN

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Backache is perhaps one of the most common complaints a physician is called upon to treat. Reports on low back pain have come for the most part from orthopedic sources but have been concerned primarily with structural deformities. In many instances there is no recognizable evidence of deformity when first examined by the family physician and the complaint is therefore apt to be lightly considered.

The various acute and chronic conditions which may produce backache are too numerous to be considered. It is my purpose in this paper to discuss only what I believe to be the most common cause of low back pain in multiparous women.

Most obese, multiparous women complain of low-back pain during the menopausal decade. This complaint is also quite common among thin women who have borne children and is practically universal among the so-called psychoneurotic or psychasthenic groups of all ages. The frequent absence of x-ray evidence to account for this disturbance led us to seek other possible causes for backache than bony changes. [1, 2, 3]

The most difficult task one encounters is to properly evaluate the importance of various minor ailments of which these persons commonly complain. Flat feet, poor posture, retroposition of the uterus, devitalized teeth, suspicious tonsils, constipation and hemorrhoids are some of the conditions to be considered. In addition there may be fatigue or an anxiety neurosis based on economic or marital difficulties. It is customary to incriminate one or more of these faults if no structural changes are seen on the x-ray films. Each of these faults has been championed as the primary cause of backache at one time or another and may, indeed be the sole cause in some instances.[1, 2, 4, 5, 6, 7, 8, 19] We feel that in the type of patient described, these conditions are more apt to be contributing factors which accentuate long standing mechanical changes.

The normal vertebral column is arranged in a series of four curves, an anterior cervical and lumbar curve and a posterior dorsal and sacral curve. It is obvious that the force of gravity from the weight of the torso must be transmitted by way of the vertebral bodies through the intervertebral discs and their contained nuclei. The nucleus pulposus is a soft, gelatinous mass which acts as a fulcrum or bearing, for the movements of the spine. By virtue of its expansile force it equalizes and absorbs the force resulting from the superincumbent weight. The force of gravity is then exerted through a sinusoidal column while the line or plane of gravity must necessarily remain vertical. The intervertebral discs are compressed on the concave side and expanded on the convex side of each curve to correct for the change in direction.[9, 10]

The line of gravity as located by Schmorl, Calve,[9, 10, 11, 12] and others is said to pass posterior to the bodies of the lumbar vertebrae and to bisect the sacroiliac joints. By a specially devised tilt table we find that this line varies with the height of the heel and the body build and have therefore been unable to establish a non-variable normal line of gravity.

Compensatory changes occur in the spine in response to an increase in the convexity or concavity of any of these curves. Thus during pregnancy there is an exaggeration of the normal lumbar lordosis with compensating changes in the sacral and the dorsal spines. This is facilitated by the generalized physiological relaxation of soft tissues associated with the gravid state. The pelvis being attached to the spine at the sacroiliac joints must tilt and rotate anteriorly in response to the alteration of the lumbar curve. The plane of the lumbosacral articulation is consequently changed, producing an increased sacral angle. This angle is constructed by continuing the plane of the superior surface of the first sacral vertebra to meet a horizontal line, but varies so widely in the normal that it is difficult to state what constitutes abnormality.[13, 14, 15, 16, 17, 26]

Stretching and thinning of the abdominal muscles and shortening of the long muscles of the back is the inevitable product of the combined effect of the uterine tumor, the lumbar lordosis, the dorsal kyphosis and the anterior tilt of the pelvis. After delivery it is common practice for the parturients to lie on the abdomen to facilitate return of the uterus to its normal position. This position, particularly if practiced on a soft bed, increases the deformity and as a re-

Read before Section on Medicine, Illinois State Medical Society, Rockford, Ill., May 22, 1935.

sult the pelvis tends to remain in its anteverted position.[6, 7, 13, 18, 20]

Subsequent pregnancies, obesity and fatigue further stretch and thin out the abdominal muscles and result in a permanent loss of tone in some, permitting the posterior group to exert unopposed traction. The lumbar spine now remains in a lordotic position, the abdominal muscles are atonic, thin and ineffective, the heavy posterior spinal erector groups are contracted and in a state of protective spasm. Although this condition is at times compatible with painless physical activity the inevitable result is backache.

Certain positions make for strength and stability, others predispose to strain. A joint maintained in its fully extended or fully flexed position is more vulnerable to injury than when held in the normal or midposition. In the hyperextended spine the weight bearing surfaces are improperly opposed and the supporting ligaments remain in constant tension, requiring tonic contraction of the muscles for support which soon results in fatigue and pain. At times the torso actually seems to be suspended by the soft tissues rather than to be supported through the vertebral bodies and their intervening discs.[21, 22, 23]

Whether the resulting backache is due to small joint pathology, muscle spasm or ligamentous strain is a debatable subject but is of little moment since the method for correction remains the same.

It is of importance to know that the process is reversible at this stage and ordinarily submits to such simple procedures as rest, heat, massage, adequate support and postural exercise.

If unrecognized during this stage various permanent changes or combinations of changes may ensue. I shall consider only those changes which commonly occur in the normal anatomical spine under the strain of the malposition just described.

Ligamentous Strain: Because of the disadvantageous balance imposed on the soft structures by the hyperextended spine the ligaments of the back and in particular the iliolumbar ligaments are vulnerable to injury. We believe that sacroiliac strain occurs less frequently than iliolumbar strain, although the two are commonly confused.[4, 6, 13, 27, 28, 29]

Hypertrophic Arthritis: Hypertrophic or osteoarthritis of the small joints in the lumbar region is perhaps the most common complication encountered. Obese, multiparous women at or near the menopause are very likely to show evidence of such changes. Osteophytic lipping of the 5th lumbar body and the superior surface of the sacrum may occur as a result of local infections or if the lumbosacral disc has become flattened. Lipping of the anterior margins of other vertebral bodies so commonly seen in persons above forty have perhaps no direct relation to the pain and may be considered to be purely degenerative changes. Trauma to articulating surfaces of the joints formed by the superior and inferior processes of adjacent vertebrae is the usual source of the disturbance. Because of the great variability in the angles presented by these joints in normal persons x-ray films are difficult to obtain and to interpret.[24, 25]

Horizontal Sacrum: The horizontal sacrum is the ultimate result attained in the unarrested process. That all cases do not proceed to this type of deformity is due either to unexplainable spontaneous arrest, fixation by bony or fibrous ankylosis or by the intervention of measures for correction. With a normal inclination of the sacrum the superincumbent weight is borne on a firm supporting base which results in a minimal amount of strain. The extreme change in the angle of the sacrum such as exists in the horizontal type, results in a maximum of forward and downward thrust on the fifth lumbar and the first sacral segments. The sacral angle in some of these cases may vary 90 degrees from the horizontal.[10, 16]

Migration of the Nucleus Pulposus: Migration of the nucleus pulposus has been demonstrated by Schmorl, Calve and others.[9, 10] In the type of malposition described the intervertebral disc is open on the convex side and compressed on the concave side. If the nucleus is intact and slightly mobile it has a natural tendency to shift toward the open or more spacious portion, much as a moist olive stone tends to move forward when compressed between the finger tips. The normal position of the nucleus is equidistant from the anterior edge of the vertebral body and the sliding surface of the articular processes; if displaced forward the nucleus no longer can act as a fulcrum or bearing but prevents flexion by producing a block.

Treatment: Rest in bed is fundamental. Two hours of bed rest in the middle of each day

markedly reduces the incidence of fatigue. To overcome the undesirable effects of a bed that is too soft or that sags in the middle, a sheet of composition material may be placed between the mattress and the springs. Correction of the anteverted position of the pelvis and shortening of the abdominal muscles can be accomplished by clasping the flexed knees against the chest. For greater comfort in this position a foot stool placed on the bed serves as an excellent rest for the flexed lower extremities.

Obesity is incompatible with successful management of this condition. The reasons are obvious and require no further explanation. Undernutrition is often synonymous with flabby musculature and requires as active correction as does obesity.

In the home or in the hospital hot wet stupes applied to the back at intervals throughout the day relieve the most stubborn cases. It is a simple and effective procedure.

Exercises such as the pelvic roll and straight leg raising hasten the restoration.

Some form of surgical garment is usually necessary to overcome muscle spasm, and to offer support to the back. This garment should be reinforced with semi-rigid steels in back which span the lordotic curve and exert pressure on the buttocks. An inner belt which fits above the pubes anteriorly complements the posterior pressure and together they tend to restore the pelvis to its former position.

Phenobarbital is at times almost a specific for the hypersensitivity or lowered threshold for pain, so often encountered during the menopause.

CONCLUSION

A common cause for backache in multiparous women is malposition of the pelvis resulting in ligamentous and muscle strain.

X-ray films show no bony changes in the early stages but lateral films taken in the upright position may show an increased sacral angle or a horizontal sacrum.

Complications such as ligamentous strain, hypertrophic arthritis of the small joints, migration of the nucleus pulposus and horizontal sacrum, follow some uncorrected cases.

Most uncomplicated cases respond to such simple procedures as rest, heat, massage, postural exercises, adequate support and the correction of abnormal body weight.

Backache due to orthopedic, genito-urinary, neurological or proctological causes are not considered to be within the scope of this paper.

636 Church St.

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DISCUSSION

Dr. Rudolph Mroz, Rockford: I am pleased to be able to open this discussion on a very important subject, because I think that next to painful feet this problem is the most frequent complaint that the orthopedic man comes in contact with. Treatment by rest in bed is often surprisingly efficient. The patient gets much relief rapidly, especially the early cases. In addition, if the patient has severe pain, I think it is wise to apply a double Buck's extension. If the patient has too much pain the extension can be removed for one or two hours. The position of flexing the thigh on the abdomen is often very gratifying. I tell my patients to stand up against the wall and to straighten their backs against the wall, but I think the horizontal position is more restful.

I believe that with continued backache anatomical changes take place. In many of these cases the x-ray does not show anything, but I believe that we should take three-quarter views in order to visualize better the small articulating surfaces.

I have a few films I would like to show to illustrate a few points. This patient had quite severe backache. The usual anteroposterior and lateral ray did not show anything, except some lipping of the sacro-iliac joints.

The three-quarters view of both sides shows up quite well the articulating surfaces of the lateral facets. There is a narrowing of the last joint space on one side with an increased density of the articulating facets as compared with the corresponding joint on the other side. The lateral joint above this one is practically obliterated by an arthritis. I have brought this up to emphasize the importance of looking further than just the usual anteroposterior and lateral x-ray views in backaches.

Dr. Robert C. Lonergan, Evanston: Backache, of course, is a subject that is of general interest because it is so widespread. It is also a subject that has been fraught with difficulty because we could not always find the specific cause for the condition. Cotton recently said that in many instances we are no farther ahead than the old negro's statement that he had "misery in the back." However, such an interesting study as this of Dr. Lang's indicates that we are getting places, and I am sure this particular angle will have an appeal.

My early memories concern fat, multiparous Jewish women complaining of backache. In studying these backs there are two factors to be considered. First, there are sometimes large fatty deposits in the pelvic region which may photograph in such a way that it appears that the pelvis is tilted forward. The other point is well established that there is a relaxation of the pelvis and the joints of the lumbar spine with pregnancy. There is no question but that repeated pregnancy increases this relaxation. In these cases there may never be again a normal physiological balance, and so, of course, these women are bound to have backache.

There is one interesting feature about this particular type of backache; namely, that treatment may be very effective and relief can be obtained.

Dr. Samuel J. Lang, Evanston (closing): I wish to thank Doctors Mroz and Lonergan for their discussions. I failed to mention Buck's extension but it is a very satisfactory method for relieving the radiating sciatic type of pain.

The fat on the hips which Dr. Lonergan mentioned is sometimes really fat, but many times it is just a hypertrophy of the gluteal muscles. In these women with anteverted pelves the glutei attempt to hold down the sacrum in order to prevent the pelvis from rotating.

MUSCULAR ASTHENOPIA

R. H. Woods, M. D.

LA SALLE, ILL.

As we usually construe it, asthenopia is visual discomfort which may be mild and occasional, or daily and severe. It may be accommodative in origin or it may be muscular or both. Invariably relieved by sleep.

The accommodative asthenope locates his headache in the temple and brow after use of the eyes. The muscular asthenope locates his headache in the occiput. The adult individual with a narrow pupilary distance of 54 to 58 is more prone to muscular asthenopia for convergence insufficiency than the individual with a P.D. of 60 or more.

A disturbed duction ratio of 2 to 2 or 3 to 3 of the vertical muscles is very troublesome but less frequent than a disturbed ratio of 1 to 4 of the lateral muscles.

Measuring the duction is very easy and not in the least confusing. For the vertical muscles the trial case prisms are quick, accurate and convenient.

A spot of light is placed at infinity, Personally I prefer a revolving target with a radius of 8 to 12 inches. 1° prism is held base down over the right, then a 2° in the same position measuring up to the point of producing diplopia. Reverse the process using prisms base up on the same eye. Then the left eye undergoes the same procedure. The usual ratio is 2° up and 2° down on either eye. One eye may not overcome as much prism base up or down as its mate in which case one knows the offending

Read before Section on Eye, Ear, Nose and Throat, Annual Meeting of Illinois State Medical Society, at Rockford, May 23, 1935.

muscle. However, if there is a discrepancy, both eyes usually show the same findings. May we say for illustration that the right eye gave 4° base down and 2° base up. The left eye will then show 4° up and 2° down. In the measurement the apex of the strong prism is over the weak muscle but in the prescription the base will be over the weak muscle. In this case we have a right hypophoria balanced by 2° base up over the right, or 2° base down on the left. As an interesting experiment one will try the Maddox rod, which will invariably give practically the same findings as the vertical duction measurements.

My experience has been to ignore a vertical phoria of 1° but to partly correct, by decentering or by prisms, a defect of 2 degrees or more. This is best done experimentally by fit-overs.

Unfortunately the lateral phorias, as shown by the Maddox rod, do not co-relate as nicely to adduction and abduction as do the vertical phorias to hyper and hypoduction; as a matter of fact, there is no relationship.

I have made it my business to run through several series of cases in the last 30 years in an attempt to establish a relationship. The last series consisted of approximately a thousand cases. Persons of low adduction would show esophoria; some would show orthophoria. Cases of normal adduction have shown exophoria, other cases of excessive adduction have shown orthophoria. One interesting case can overcome 60° base out. He has at various times shown exophoria, other times esophoria. It is needless to say that this individual is most comfortable with a slight over-correction of plus, despite the fact it cuts his distant vision perceptibly. At no time has there been any group in any series that one could select to work out a comparison or establish a relationship.

I would advise every refractionist to take the next five hundred cases that come to his office and do the phoria tests and duction tests, keeping accurate records of each. He can then and only then make a satisfactory conclusion.

Carrying out the measurement of adduction and abduction consumes but little time and puts one squarely on his feet as to the prognosis of the patient's comfort in wearing his glasses. My choice as to equipment is a prism bar containing fifteen prisms running from 1° to 15° inclusive. I use it in preference to the rotary prisms principally because of the convenience and the element of time. The prism bar is augmented by ordinary trial case prisms. As one becomes more acquainted with the work it will be found that a set of square prisms running in pairs from 1° to 30° will be convenient not alone for measurement but for orthoptic training.

One will find that the average individual will overcome 7° prism base in and out or an abduction of 7° and adduction of 30°. If the abduction runs 10° or 12° the adduction should be four times that. With an abduction of 10° and an adduction of 20° the patient is not going to wear his glasses with comfort. Prisms base in, in fit-overs for temporary use on close work are expedient but orthoptic training is the logical treatment.

The measure of the reserve convergence should never be overlooked, as a matter of fact, it is my first procedure after measuring the amplitude of accommodation. Most phorometers are equipped for this procedure. A dot and line is placed vertically at 13 inches from the eyes. A 6° prism base up or down is placed over one eye. The average individual will overcome 15° base out at this distance. When they overcome anything less than 10° they are put on orthoptic training both in the office and at home.

For this procedure in order to save time and for convenience, two good ideas were combined, resulting in the production of the Ampliometer.

The Prince ruler has been on the market and in use for over 30 years that I know of. It is scaled in accord to Donders' table. It measures the amplitude of accommodation of each eye separately. The Ampliometer is scaled in inches for convenience but corresponds to graduations of Prince. The device is a simple strip of metal about fifteen inches long slotted on the proximal end to straddle the upright on the trial frame and distal end curved for the convenient grasp of the patient. It carries a movable slide and clip. Accommodation of the two eyes is thus measured at the same time in the act of convergence.

After doing a careful manifest the slide is set at the punctum proximum of the average emmetrope of the same age, as shown on the

shaft, according to Donders. A line of 5 point print is inserted in the clip and the instrument placed in position. If the patient fails to read the type at this distance it indicates a latent error or an accommodative insufficiency. Each eye is then checked separately to determine if the accommodative power of each is equal. The approximate amount of spasm or insufficiency is determined by the addition of plus of just sufficient power to make the type legible.

With the slide in position the card is reversed and the dot and line is placed vertically in the clip. A 6° prism is placed base up or down before one eye. Two dots should appear on one line. When only one dot on one line is seen, one eye is repressing, which is much more frequent than one would suppose. If there appear two lines with a dot on each line there is a convergence insufficiency which can be measured by prisms base in of just sufficient strength to give fusion of the lines. When this occurs it will be also found that there is a lowered reserve convergence and a lowered adduction, yet the Maddox rod may show orthophoria.

Leaving the 6° prism in place and pushing the clip bearing the dot and line back to 13 inches one then measures the reserve convergence which as previously stated should be 15°.

In the so-called esophoria type, plus lenses afford relief, but never under any circumstances prescribe prisms base out for constant wear. If needed, add more plus, bifocals if necessary, even for children, to gain repression. Repressing accommodation represses convergence.

In the exophoria type or convergence insufficiency, which is the most frequent of all and the most troublesome for both the technician and patient, orthoptic training is the most satisfactory treatment. Prisms base in, set up in fit-overs for close use, may be used temporarily until the convergence can be built up.

In those cases who do not respond readily to orthoptic exercises it will be found that there is some constitutional defect or instability as a background.

If one contemplates entering the field of orthoptics he should train an assistant to do the work for the reason the field is so big and at the present time practically unoccupied. If one attempts to do it all himself eventually the more remunerative lines of his practice will be crowded out.

The most satisfactory office equipment we have experimented with, and that which consumes the least time and holds the patient's interest and attention is a revolving disc carrying a target. This, plus the Keystone views. The office treatments run from three to thirty minutes of diligent concentration by the patient to the work at hand, always ceasing at a point short of fatigue.

In convergent squint cases we have had the quickest results by a partial tenotomy plus the full hyperopic correction up to tolerance plus the development of fusion and muscle training.

In divergent squint, tenotomy and lenses to give the best comfortable vision plus orthoptics to develop fusion and build the weak muscles.

DISCUSSION

Dr. J. L. Bressler, Chicago: Dr. Woods mentioned tenotomy followed by orthoptic training. I am opposed to any form of tenotomy unless it is an anchor tenotomy. You will hear in my paper what the results have been after orthoptic training has been tried, followed by surgery if necessary, with the results always better both for fusion and parallelism.

EYE AND EAR REFLEXES CAUSED BY DENTAL PATHOLOGY

Joseph Shanks, M. D.

CHICAGO

The subject of dental irritation in its effect upon the eye and ear in bringing about and influencing the course of diseases of these delicate organs is one which has, from time to time, aroused considerable interest and renewed investigation among the more scholarly observers of our day. On the other hand, it should be remarked with the best of our intentions that a good many medical men or eye and ear surgeons as well as a larger number of dental practitioners have failed to give the subject the attention it deserves, the reason not being so very obscure as one might think. Yet, what difference of opinion and what confusion! Why? What is there to the question whether pathological teeth ought to be removed or not? Although the subject has been debated for a great many years and is still debatable; although the subject as to whether all questionable cases ought or ought not to be checked up by an eye and ear surgeon is fre-

quently baffling, what is there to the mystery outside of the simple understanding of the nervous mechanism in question?

That various eye affections such as poor accommodation, muscular spasms of the eye, etc., can be brought about by irritation of the dental ends of the trigeminus was studied by a number of French, German and American observers and medical men. A French authority cited a case of muscular imbalance of the left eye of some months' duration cured by the extraction of several carious teeth. He emphasized the fact that they were not sensitive or painful teeth; that they had undoubtfully nonvital pulps. The experience of many clinicians, as well as of the author, offers abundant and satisfactory proof of the existence of about five main classes of eye reflex irritation, varying in featural characteristics only as to nerve fibers or nerve branches afflicted. Thus, for instance:

1. The very familiar picture of vasomotor and nutritional reflex disturbances brought about by extreme dental decay and inflammatory conditions of the gum, a class not unknown to the dentist and so easily diagnosed.

2. Sharp or stinging pain in the eyeball caused by reflex inflammatory conditions of the sensory fibers of the fifth nerve due to irritation of a live pulp, oversensitive dentine or by an exposed cavity in some tooth.

3. Certain spasmodic or paralytic affections of the eye muscles, etc., may occur as a result of abscessed or dead teeth. Such conditions often tend to baffle the patient as well as the dental practitioner, especially after a superficial hasty examination on the part of the doctor and the confusing interpretation of symptoms on the part of the patient who generally suffers no pain.

4. Eye strain or eye fatigue attributed to the reflex action of dead teeth and gum abscess, a condition brought about through irritation of the nerves of the ciliary muscles or oculomotor nerves.

5. Important functional disease like neurasthenia may be the direct result of dental pathology and brought about through the irritating action of the sympathetic ganglion connected with the fifth nerve as well as with the eye.

Now, as to the question or problem whether pathological teeth ought to be extracted (leaving out extreme carious dentures). Why not consider the medical, ophthalmological or otological standpoint? The answer is simple and logical. Some cases respond to superficial and average dental hygienic treatment. Others, due to systemic or inherited nervous tendencies are unable to stand the strain of nervous irritation, whether from dental or any other source, are exhibiting such symptoms as vertigo, eye manifestations, headaches and neurasthenia. Neurasthenia will often incapacitate the patient and keep him more or less in constant ill health. In such cases, from a medical standpoint, there is only one solution to the problem, namely, the eradication of the main focal point and restoration of the patient to normal health in reward for the loss of such teeth.

Closely allied to such eye conditions of a reflex nature as mentioned above, are the more interesting ear conditions produced by dental irritation in a similar manner as in the eye. A German observer and writer, Rau (Berlin, 1856) stated in his work "Ohrenheilkunde" that dentition in many young children causes more or less irritation to the external ear apparatus. Another early observer, Sexton, an American (New York, 1880) published a number of scientific and elaborate articles concerning the effects of dental irritation on the ear. A more comprehensive account of earache in children, excited by reflex action due to dental irritation, perhaps, among earlier authorities, is to be found in the work of Woakes, published in 1880 (Philadelphia).

In "System of Diseases of the Ear, Nose and Throat," Colles, in a chapter on the middle ear, quotes from a work of Woakes and writes about the anatomic points of the nervous relationship between the ear, gums, teeth, mouth, nose and pharynx as follows:

"The nerves composing the group now called the tympanic plexus are brought into intimate relations with those of the throat, mouth, etc., through branches arising mostly from the otic, petrosal and spheno-palatine (Meckel's) ganglia. By means of the otic ganglion the inferior maxillary or third division of the fifth pair is connected with the plexus, while from the petrosal ganglion of the glosso-pharyngeal nerve arises the tympanic or Jacobson's nerve, which constitutes the largest portion of the tympanic nerve supply. Connection between the tympanic plexus and the second division or superior maxillary branch of the fifth pair exists also by means of the Vidian nerve through the spheno-palatine ganglion. The carotid plexus of the sympathetic, furthermore, is connected with the glosso-pharyngeal by means of the small carotid-tympanic branches of Jacobson's nerve; communication between

the ear and the superior cervical ganglion of the sympathetic is thus established."

For detailed study of other smaller nervous connections, the above author refers the reader to the standard text-books on anatomy.

So, from anatomic-physiological considerations we can thus see how these complicated nerve connections bring about disturbances owing to dysfunction—how the ear is affected through the sympathetic relationship with trouble arising in certain remote or adjacent organs of the body, such as the genitourinary system, stomach, heart, mouth, teeth, nose, pharynx, soft palate, etc. In other words where pathological conditions have long existed the nerve supply will become altered and reflex phenomena be naturally manifest. Thus dental pathology, especially infection from long standing, may bring about trophic or nutritive changes to local tissue and is liable to cause some perverted nerve action in some other part as well.

The conclusions from the following two typical cases, in the form of questions and answers between the dental surgeon and patient, may be deduced from the foregoing study:

Case 1. Mr. Johnson visits his dentist who asks:

"What is wrong today, Mr. Johnson?"

"Why, don't you see my inflamed eye? The eye doctor told me to have my teeth checked up, so I came."

"Do you have a toothache? "

"No, but he wants me to have my teeth examined just the same."

"Didn't I see you about two months ago and told you that you were O. K."

"But my doctor—"

"Hmm. Sit down and let me see."

Dentist after a superficial glance: "I don't see anything wrong. Probably a cold in the eye."

"I suggested that to the doctor who only laughed merrily and said that there is no such animal—that eyes catch no cold."

"He is probably right. However, the idea of your good teeth being a cause of your inflammatory eye condition is, of course, nonsense."

"Oh, yes, doctor; the eye doctor advised an x-ray at once. Shall I take it?"

"If you wish. An x-ray can do no harm."

"I see. I shall go then to the laboratory today."

"All right."

The above was a typical case—a pathological reflex case as revealed by x-ray showing a pathologic area associated with the mesiodistal root of the upper left first molar. Extraction of tooth brought on speedy recovery.

Case 2. Mrs. Smythe came to the dentist on a particular mission. She was suffering with a certain amount of dull pain periodically in her right ear. She had been recently reading in a newspaper about teeth in relation to other organs. She remembered seeing an article by Dr. Jones in which the statement was made that there are some teeth better out than in; that some teeth are nothing more or less than a menace to health. This, to her, was quite interesting as evidenced from the fact that she suffered on and off from earache. Like many a patient, she felt that if the tooth-extraction procedure could be safely dispensed with, she naturally preferred this; if, however, those teeth must come out, she would have no hesitancy in having them pulled. So it is in an anxious frame of mind that she comes to her dentist.

"What brings you here, Mrs. Smythe?"

"Oh, I'd like to have a little talk with you about my teeth—about my earache."

"But what is your specific complaint?"

"I don't exactly know; I'd like you to look my teeth over; perhaps they cause my ear trouble."

"You condition is probably due to a cold. I shall, however, examine your mouth." After a short and rapid examination, the dentist said: "Nothing is wrong with your teeth or gums. As I said before, probably an exposure to cold."

"Well, do you advise seeing an ear surgeon?"

"Is there any pus discharging from your ear?"

"No."

"Then I don't know what to advise you. Suit yourself."

Ear and x-ray examination revealed pathological conditions of upper third molar, with beginning absorption of the roots.

SUMMARY

Although a good deal more could be written on the subject to prove, even to a greater degree, the effects of dental irritation on the eye and ear, enough has been stated, the author believes, to call attention to the more frequent source of such trouble. The type of patient who should receive the benefits of thorough study and cooperation by the dentist and oculist-aurist is the one:

1. With vasomotor and nutritional disturbances.

2. With acute pain in the eye or ear without apparent inflammatory or suppurative manifestations.

3. With neurasthenia induced by the irritation of the sympathetic ganglion connected with the trigeminus and the eye or ear. In such cases we not only have the inherited morbid tendency to deal with that causes functional neurosis in susceptible cases even insanity.

4. With spasms or paralysis of the eyelids caused by bad teeth and alveolar abscesses. The patients generally have no pain or toothache ex-

cept from the ill effects of the afflicted muscles.

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THE SYMPTOMS AND DIAGNOSIS OF CORONARY OCCLUSION

James G. Carr, M. D.

EVANSTON, ILL.

About this time of the year, twenty-two years ago, there appeared in the Journal of the American Medical Association a paper on coronary thrombosis, from the pen of Dr. James B. Herrick,[1] which has long since been recognized as a classic of medical literature. It seems a work of supererogation, almost presumptuous, to undertake to do again what has been so well done. In spite of the present wealth of literature upon the subject, the original article remains a mine of information and a model of clear-cut, forceful and thorough presentation.

A description of the symptoms of coronary occlusion may well be prefaced by a quotation from Herrick's first paper:

"The clinical manifestations of coronary obstruction will evidently vary greatly, depending on the size, location and number of vessels occluded. . . . No simple picture of the condition can, therefore, be drawn. All attempts at dividing these clinical manifestations into groups must be artificial and more or less imperfect. Yet such an attempt is not without value, as it enables one the better to understand the gravity of an obstructive accident, to differentiate it from other conditions presenting somewhat simlar symptoms, and to employ a more rational therapy that may, to a slight extent at least, be more efficient."

Preceding the characteristic symptoms of a coronary occlusion, the patient often relates a story of minor pains, at first regarded with indifference. These premonitory signs are likely to include some variety of stenocardia, slight pain or a sense of tightness within the chest, which may be associated with the radiation of dull pain, especially to the arm. Oftentimes, epigastric distress, vaguely described as to location and character, may co-exist with the thoracic distress or may occur alone.

If the patient has had previous attacks of angina there is no question in his mind as to the difference between these attacks and a frank attack of coronary occlusion. The onset of a severe attack is usually characterized by agonizing pain, wholly unlike anything hitherto experienced. The pain is described as a sense of pressure or constriction in the chest, often with burning, a pain that "cannot be told." Nausea and vomiting are often present as initial symptoms. There is a sense of prostration, great weakness and often a feeling of impending death. Usually the pain is referred to the left arm, often to the neck, the jaws, the right arm or the upper abdomen. The face is ashy, the features that of one in almost unbearable pain, the pulse is rapid, the patient may break out in a sweat. When the blood pressure has been known before the attack, it is often found to have fallen with the onset of the symptoms and usually is decidedly below the original level within a few hours. The low pressure persists for some time. Cyanosis may be marked from the start, or develop later. It is especially prominent in cases with pulmonary edema which is a rather frequent complication of the severe attacks. The congestion in the lungs may be so severe as to produce hemoptysis. One of the most confusing of symptoms is the referred pain to the abdomen, about which more must be said in the discussion of diagnosis. Abdominal distension may be a prominent symptom.

The physical signs are particularly referrable to the heart and lungs. The pulse is usually rapid, often irregular, occasionally slow. In one instance we have seen complete block occurring within the first forty-eight hours of the attack. In another case, paroxysms of ventricular tachycardia started within the first twenty-four hours. In Herrick's original report he says of the pulse, "In all the sudden development of a weak pulse. with feeble cardiac tones, was a striking feature; the pulse was generally rapid." Allbutt[2] speaks of "the flutter and lability of the heart, the rapid, irregular and failing pulse, the waning cardiac sounds, the dyspnea and cyanosis." The heart sounds are of significance. The tones are often distant; this may be due to cardiac weakness alone, although the emphysema of which Herrick speaks is often a factor. Gallop rhythm is common. Various writers speak of the alternating pulse; it has been my own experience that the various beats are unequal in force though the rhythm be regular, but this inequality of beat does not often produce a regular alternation;

when the blood pressure falls notably and the pulse pressure is low, it is not easy to determine the alternating pulse. A precordial friction rub, a finding of diagnostic importance, is often present. Fever, leukocytosis and a pericardial friction rub constitute a diagnostic triad of importance, particularly in those cases in which diagnosis is difficult. In practically all the severe cases, moist rales may be heard at the bases of the lungs; when the diagnosis is in question the evidence of pulmonary congestion or edema is important, especially if this is bilateral. Pulmonary edema, extensive in degree, may occur; this is a complication of major gravity.

Symptoms referrable to other organs are largely the result of the violent disturbance of cardiovascular function. Rapid lowering of the blood pressure is probably a principal cause of the diminished output of urine, though this may be aggravated by sweating, or the inability to take fluid. In a patient who has had for years, moderate or marked rise of blood pressure, the sudden fall of pressure may be cited to explain the cerebral symptoms, although the pain, the profound emotional disturbance, and the necessary sedatives may be partly responsible for mild delirium or a semi-comatose condition. The occurrence of emboli through the body may ensue shortly after the attack. This phenomenon is always ominous. In three instances I have seen well-developed peripheral gangrene, once in the forearm and twice in the lower extremities. Cardiac failure of the congestive type, with edema elsewhere than in the lungs, develops in a fair proportion of the cases. The milder forms are not particularly significant, but generalized edema is a symptom of serious import. Usually the patients who develop this condition do not survive, yet I recall one patient now living in fair health, who had extensive edema for weeks subsequent to a coronary occlusion about three years ago.

One important group of cases is characterized by the absence or the insignficance of cardiac pain. In his first paper Herrick stated that "cases with little or no pain have been described" and cites the mention of such cases by Chiari, Thorel and Huchard. Obrastzow and Strachesko,[3] in their paper published in 1910, included two cases in which painful sensations were almost entirely lacking. What they designate as a status dyspnoeticus or asthmaticus was observed, accompanied by a rather marked type of Cheyne-Stokes respiration. In a paper published in 1929 Herrick[4] says: "There is no doubt that there are cases with mild pain or with no pain at all. . . . In one case, otherwise perfectly typical, weakness and dizziness marked the onset, and even several hours later there was no pain requiring morphine, merely a precordial distress." N. S. Davis[5] reported two cases of the abrupt onset of the symptoms of congestive failure ushering in a long period of decompensation, with autopsy. Old myocardial infarction was found in each. No history of pain had been given.

During the past ten years there have been 53 cases of coronary occlusion at the Evanston Hospital; the records of three of these contain no reference to pain. Two of the three cases were known to me. A man of 60 was admitted five days after an attack of unconsciousness followed by weakness. When seen at the hospital on the fifth day of his illness, after he had finally consented to accept rest in a hospital, our first impression was that he had not sustained a coronary occlusion but had merely undergone an attack of faintness following an unusually trying emotional stress. The electrocardigram showed a deep Q-wave in Lead III and a sharply deflected deep T-wave in the same lead, upon which the diagnosis of coronary occlusion was based. The subsequent course confirmed the diagnosis.

A woman of 66, a known diabetic, was admitted with a diagnosis of diabetic coma. The diagnosis was largely based upon the previous history, her known reluctance to accept dietary restrictions and to take insulin, and a history of nausea and vomiting for two days. She was not unconscious when she reached the hospital, but was very dyspneic and cyanotic and her death within an hour was ascribed to edema of the lungs. No history of pain was obtained from her relatives. The left coronary artery showed marked yellow thickening; about 8 cm. from its origin it was completely obliterated by a fresh thrombus. The right coronary artery showed a marked amount of yellow thickening and 5.5 cm. from its origin the lumen was almost completely obliterated. The third case was that of a man who was admitted on the fourth day of his illness. The onset was with dizziness, headache, sweating, faintness and nausea. He was at his desk when these symptoms came on. Upon admission he was cyanotic and dyspneic; the blood

pressure was 92/75. The electrocardiogram showed marked abnormality with a Pardee wave in Lead I. The nurse's notes include frequent references to "difficult breathing" and "labored breathing" and to cyanosis, but pain is not mentioned. Autopsy revealed "recent thrombosis with complete obstruction of the descending branch of the left coronary artery."

The subject of coronary occlusion without pain, or with pain equivalent, deserves further study. At present, dogmatic assertions must be avoided. We do not know enough about individual reaction to pain to speak too confidently of the absence of pain in the two men whose clinical courses have just been described. One was a Christian Scientist, the other a man who hated to admit that anything was wrong with him. It is, however, well established that from time to time cases of coronary obstruction are observed in which pain is absent or insignificant. Perhaps this is largely due to individual indifference to pain; perhaps to a relative suppression of the appreciation of pain in the presence of an overwhelming anxiety produced by intense dyspnea. Perhaps the presence or the intensity of the pain may be dependent upon the state of the coronary vessels, especially upon the degree of the development of collateral circulation in the presence of diffuse sclerosis of the coronary circuit. Oberhelman and LeCount[6] showed that arteriosclerosis of the coronary circuit is accompanied in many instances by increased capacity of the collateral vessels. When this does not occur the occasion of a closure portends more rapid and complete degeneration of the muscular area involved; when the collaterals are well-developed, the shock of a single occlusion is less pronounced.

The typical attack of coronary occlusion is usually quickly recognized, but there are many instances in which the diagnosis is difficult because of the comparative mildness of the symptoms. It is quite generally assumed that the milder attacks are the result of occlusion in smaller vessels of the coronary circuit. The mild attack may be a precursor of an attack of major significance.

In his original paper Herrick recognized a group in which may be placed non-fatal cases with mild symptoms. Wearn[7] says, "A third group of individuals recover, become ambulatory and are able to return to light work." Such cases are likely to be characterized by cardiac pain so severe and persistent as to make untenable the diagnosis of a simple anginal attack, yet unassociated with the expected general symptoms of coronary occlusion. The diagnosis of occlusion is made more probable if fever and leukocytosis are present, and further strengthened if a pericardial rub is heard. The electrocardiogram may confirm the diagnosis, but should not be accepted as final evidence against it. The failure of a supposed attack of angina pectoris to respond to vasodilators, and the persistence of fairly severe pain for an hour or two in spite of the use of these drugs is, at least, highly suggestive. H. J. Stewart[8] says: "The minimum signs and symptoms upon which one may venture to make a diagnosis of coronary occlusion and to give and estimate the state of the coronary vessels and of the heart muscles are not known." When pain of this equivocal type follows a history of abdominal distress, suggestive of disease of the gall-bladder or stomach, the history, carefully developed, will often permit a correct diagnosis. The blood pressure, the condition of the peripheral vessels, the occupation and the physical constitution of the patient and the family history are factors of importance.

One feature of the symptomatology of coronary occlusion is the tendency to progression in many cases. This was illustrated in the case of an obese man of 55, who was wakened about 1:00 A. M. with characteristic pain. Some three hours later his physician was called and the administration of morphine gave relief. Early in the afternoon another attack was promptly controlled in the same way. About 7:00 A. M. the next morning an attack of great severity began with collapse, which required a larger dosage of morphine for control. Thereafter the patient made an uninterrupted recovery. Apparently a thrombosis beginning in a small vessel may be responsible for a similar process in a large vessel from which the first vessel derives, and the process finally involves an even larger branch. This sequence has been frequent enough in my experience to convince me that apparently minoor attacks cannot be too carefully and rigidly taken care of.

The diagnosis of the typical case is based upon the symptoms and physical findings described and the confirmatory evidence of the electrocardiogram. The differential diagnosis demands consideration of many thoracic and abdominal conditions; left-sided pneumonia or pleurisy, massive collapse of the lung, spontaneous

pneumothorax, pulmonary infarction, interstitial emphysema, acute pericarditis of infectious origin, acute intercostal neuritis (for instance, a herpes zoster of the left side prior to the appearance of the vesicles), dissecting aneurysm of the aorta, rupture of the heart, of a valve or of a papillary muscle—in short, any pathologic process of the thoracic wall or within it, which is associated with pain of great intensity, with dyspnea, cyanosis, tachycardia and shock, must be excluded.

In his original paper Herrick says:

"Emphasis ought to be laid on the resemblance of some of these cases to surgical accidents. The sudden onset with pain over the lower sternal and epigastric region, the nausea and vomiting, the tympany, the feeble pulse, ashy color, cold sweat, and other signs of collapse, make one think of such conditions as gallbladder disease, acute hemorrhagic pancreatitis, perforation of gastric or duodenal ulcers, hemorrhage into the adrenal capsule, tc."

In 1918, Levine and Tranter[9] published two cases calling attention to the importance of this phase of the differential diagnosis. In 1923, Wearn wrote: "The abdominal examination is an important one, for it is here that one is frequently misled in attempting to make a diagnosis." Levine,[10] in his recent monograph, summarizes the important differential signs thus: "It may be the marked muffling of the heart sounds, or the presence of a gallop rhythm, an alternating pulse, a pericardial friction sound, or a previous history of 'indigestion' on effort that will direct the attention of the physician to the coronary arteries. In fact, minor considerations like the family history or the general vigorous physique of the individual might be helpful in diagnosis. . . . At times changes occur in the electrocardiograms that are so characteristic that no other data whatever would be necessary to make a positive diagnosis."

In the diagnosis of coronary occlusion the electrocardiogram has become important. F. M. Smith[11] published the results of his experimental work in 1918. In 1919, Herrick discussed his results. In the course of this discussion he wrote: "There seems to be a fairly constant variation in the electrocardiogram following the ligation of a particular branch of the coronary." In 1920, Pardee[13] described the alteration of the R-S-T complex which is commonly known as the Pardee wave, and is regarded as diagnostic of coronary occlusion. The summary of his paper includes this paragraph: "The characteristic changes appearing a day or two after the obstruction are as follows: The Q-R-S group is usually notched in at least two leads and usually shows left ventricular preponderance. The T-wave does not start from the zero level of the record in either Lead I or Lead III, though perhaps from a line not far removed from it, and in this lead quickly turns away from its starting point in a sharp curve, without the short straight stretch which is so evident in normal records preceding the peak of the T-wave. The T-wave is usually of larger size than customary and accordingly shows a somewhat sharper peak. The T-wave is usually turned downward in Lead II and in one other lead. Not all of these changes are to be found in every record, but enough of them are present to give it a characteristic appearance."

Pardee[14] also directed attention to "the occurrence of records showing left axis deviation of Q-R-S or a normal electrical axis, combined with a large Q-wave in Lead III, one that is 25 per cent. or more of the largest deflection of Q-R-S in whichever lead this may occur. The majority of such leads are obtained from patients with the anginal syndrome, but certain patients with myocardial fibrosis and congestive failure, certain patients with rheumatic heart disease, especially with pericarditis, and a few with hypertension, will give such records." Fenichel and Kugell[15] believe that the large Q-wave is the most frequent electrocardiographic sign of coronary artery disease during the chronic period.

Fowler, Rathe, and Fred M. Smith,[16] upon the basis of experimental studies, state that "The occlusion of small branches of both the right and left coronary arteries and also the opening of the pericardium without the closure of a vessel produced successive changes in the T-wave of the electrocardiogram. In each instance the alteration of the T-deflection was associated with a lesion of the myocardium. We believe that electrocardiographic changes of this character are indicative of a myocardial lesion, and feel that these findings may be helpful in the diagnosis of occlusion of the smaller branches of the coronary arteries in man." The fourth lead has been studied by Katz and Kissin,[17] who describe three types of changes as specific for recent coronary occlusion, and by Wolferth and Wood, who state

that the "employment of chest leads adds materially to the usefulness of the electrocardiograph in the study of certain cases of myocardial infarction." Master[18] reports changes in the P-wave in 80 per cent. of 40 cases of coronary occlusion. "These changes consisted for the most part in increase in amplitude of the P-wave and occasionally in notching or widening of the auricular complex."

In summary, it may be said that the T-wave changes described by Pardee are generally accepted as indicative of acute coronary obstruction. The prolongation of the Q-wave as described by the authors just mentioned is frequently found in association with myocardial infarction, but is also found in other conditions characterized by marked myocardial changes. The changes in Lead IV are not yet established as characteristic. The electrocardiogram may also give us valuable information as to the nature of cardiac irregularities and tachycardia and may prove the presence of heart block, all of which alterations of rhythm often occur subsequent to cardiac infarction.

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THE CAUSES OF ACUTE DILATATION OF THE STOMACH

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A good deal of work has been done in the hundred years that acute dilatation of the stomach has been known to clear up the pathogenesis. Rokitansky suggested over 70 years ago the occlusion of the transverse portion of the duodenum for the explanation of the pathogenesis. Pathologists have been generally skeptical, many surgeons and physiologists have endorsed the theory. Real progress has been made in the understanding of the constitutional and metabolic changes that make up the late stages of the clinical picture. But duodenal obstruction, in one way or another, is the backbone of the many theories advanced, up to the present day, to account for the pathogenesis of the syndrome. Little attention has been paid to the dynamic nature of the forces that are responsible for acute dilatation of the stomach and to the fact that the acute dilatation is commonly the result of medical tampering with a protective mechanism of the body.

Present day theory—The most common present day conception of the pathogenesis advances a primary atony of the upper intestinal tract. The vagal branches act as the motor nerves of the stomach; their stimulation causes contraction of the muscular coat and relaxation of the sphincters. But severing the vagal branches does not cause complete atony of the stomach, because of the automaticity inherent in the muscles of the intestinal tract. A paralysis of the muscles must be postulated before the loss of tonus can occur.

It is assumed that strong somatic or visceral sensory stimuli which may be due to trauma or to handling of the viscera in the course of an operation cause inhibition of the vagal branches and paralysis of the muscular coat of the upper intestinal tract. The stomach gets distended and, by some mechanism or other, occludes the third portion of the duodenum.

The contents of the stomach are gas or fluids. The gas is mainly swallowed air of expiration (McIver, Lee). The fluids are made up of the various digestive juices of the upper intestinal tract: gastric, duodenal, pancreatic, bile, saliva. The fluids that accumulate in the stomach are arrested by the duodenal occlusion from passing down the bowels.

The average man secretes 6 to 8 liters of digestive juices in 24 hours. As a result of proteolytic action, histamin like bodies are formed in the duodenum and absorbed, and these substances powerfully stimulate the secretion of the digestive glands (Ivy, Dragstedt).

There is present, therefore, an abundant sup-

ply of fluids to explain the enormous quantities that keep on collecting in the stomach.

The water and salts are lost to the body. Water and salts are not absorbed in the upper intestinal tract, as has been proved by animal experiments.

The loss of water and salts produces the chain of the late events of syndrome: dehydration, demineralization, azotemia, alkalosis, myocardial insufficiency and death.

But why does the stomach get distended in the first place? What are the forces that carry gas or fluids into the stomach in quantities sufficient to produce the enormous dilatation? No adequate answer has been given.

Pathogenesis. Owing to differences in etiology and mechanism, all cases of acute dilatation fall into two groups. The first group occurs during surgical operations and the stomach is distended by air—acute operative dilatation. The second group occurs in the post-operative state or in association with certain medical diseases and the stomach gets distended by digestive juices: it may be called acute secretory dilatation.

Acute Operative Dilatation. There are some symptoms that are commonly mentioned in the history of cases recorded in the literature: the patients take the anesthetic poorly; their color is often bad; they come out of the anesthesia, they struggle.

Alvarez (1928) records several cases that occurred in animals while he was working with them with their bellies open. He noticed a peculiar type of powerful respiratory movement which rapidly filled the stomach with air.

Numerous mild attacks of acute dilatation which I experienced personally called my attention to the mechanism involved. I have been swimming for years, but poorly. Once a swimming instructor watched me and gave me points regarding the proper way of breathing while swimming. While carrying out his instructions and exhaling under water, I felt extremely distended after swimming a few hundred feet. Air bubbles kept on coming up and I was not conscious of swallowing air, but I became decidedly conscious of the severe distention caused by the swallowed air.

The common factor in all these cases of acute operative dilatation is a disturbed respiratory mechanism. Normal breathing is purposeful, efficient. The proper muscles are brought into play, rate and depth of respiration are adjusted to make the best use of the oxygen in the air. The introduction of unusual, difficult environmental conditions upsets the nice balance of the respiratory mechanism.

In my personal experience, the difficulty lay with breathing out under water. The expiratory phase of respiration became embarrassed. Obviously, the pharyngeal and esophageal muscles joined forces with the muscles of expiration and began to pump part of the unexpired air, to no good purpose, down into the stomach. It took me, by the way, quite a while to train these muscles not to trespass on the respiratory mechanism.

The patient who breathes in air mixed with vapors of ether or chloroform feels like choking, unless the anesthesia is deep. He struggles, but cannot escape his tormentor, the anesthetic. His respiration becomes difficult and disorganized, extraneous muscles come into play, and, whatever else happens, in some cases the muscles of deglutition begin to work synchronously with the expiratory muscles and force air down into the stomach, until the pressure there is in excess of the atmospheric.

The swallowing of air that distends the stomach and brings on the syndrome is, therefore, not a simple reflex act. It is a biological reaction, the expression of a struggle for adjustment to abnormal environmental conditions.

Inhalation anesthesia is the common etiological factor.

Acute Secretory Dilatation. The following case that I saw several years ago with Dr. S. Boros may help to throw light on the pathogenesis of this form. Only the facts pertinent to the problem on hand are given.

Case. J. D., female, 46 years old, single. She became sick with severe and copious vomiting and was given morphine sulphate and cocaine by mouth in dosage sufficient to stop the vomiting. Shortly thereafter she began to complain of feeling of substernal pressure that gradually gave away to agonizing pain all over the abdomen. There was a stoppage of stool and flatus. Enemata gave no result. She felt weak and thirsty.

Two years previous her appendix had been removed. For several years she had suffered from diabetes.

On examination she looked ill. The face was pinched, the nostrils were dilating. Temperature, 102; pulse, 130. She was emaciated, the skin atrophic, dry. There was no odor of acetone to her breath. The abdomen was symmetrically distended and tender all over. No peristaltic noises could be heard.

Later, at a hospital, the urine was found loaded with albumin, casts, sugar, acetone and diacetic acid.

She was operated on and a dilated stomach was found filled with characteristic fluid. After a stormy convalescence she eventually recovered. Diagnosis: Acute dilatation of the stomach, secondary to diabetic acidosis.

This case clearly presents the two factors that are essential for the production of acute secretory dilatation of the stomach: reverse peristalsis and suppression of the act of vomiting.

Reverse Peristalsis. The contents of the intestinal tract move caudad because of the arrangement of graded forces along the wall of the intestinal tract (theory of intestinal gradients of Alvarez). The wall of the upper tract possesses a higher tonicity, rhythmicity, metabolic rate compared to that of the lower bowel. The stomach acts as the "chief motor" of the system.

As a result of pathological conditions, a rearrangement of areas of high and low pressure may take place. The lower bowel may develop areas of increased tonicity through congestion, irritation; the stomach may become atonic. The intestinal gradient becomes flattened or reversed, and intestinal contents are carried by antiperistaltic waves to the stomach.

Reverse peristalsis expresses itself clinically by nausea, vomiting and a few more of the so-called dyspeptic signs.

Reverse Peristalsis and Acute Dilatation. Acute dilatation of the stomach is preceded by nausea and vomiting, the signs of a reversed gradient and peristalsis. The reversal of gradient is mechanically directly related to the atony of the upper intestinal tract, advanced and stressed by physiologists and clinicians as the result of the reflex inhibition of the vagal branches or the stimulation of the splanchnic nerves. The antiperistaltic waves carry fluids from the intestines to the stomach. If the stomach, for some reason, fails to empty itself by vomiting, it becomes distended. Next, the distention of the stomach reacts upon the motor and secretory functions of the digestive tract.

The low tonus of the upper intestinal tract, an important factor for the reversal of the intestinal gradient, is still further depressed by the distention of the stomach; the reversed intestinal gradient is steepened and the stomach is turned into an aspirating apparatus for the digestive juices and the contents of the small bowel. It may be possible and of interest to prove in the laboratory the regurgitation of fluids past the "occluded" duodenum.

The reverse peristalsis causes the stomach to get distended and the distention intensifies the reverse peristalsis: a vicious circle is created.

Thus the distended stomach acts as a dynamic barrier to the passage of the contents along the natural channels.

If the contents of the stomach are aspirated, the stomach is given a chance to contract and to regain the normal tonus, the normal intestinal gradient is reestablished and the syndrome is over.

The distention of the stomach stimulates the secretion of the digestive juices: first, that of the gastric juice, by direct mechanical irritation, as has been proved repeatedly by animal experiments (Ivy, 1925); second, that of the digestive glands of the upper intestinal tract by the formation and absorption of the secretagogues, referred to above. These toxins form as a result of stagnation in the upper intestinal tract, no matter how the mechanism of the latter is explained, and are absorbed owing to pathological changes that take place in the thinned duodenal wall. Thus the source of the large quantities of fluid in the stomach is explained. Next follow the loss of water and electrolytes, dehydration, toxemia and collapse.

Associated Pathological Conditions. Reverse peristalsis is associated with a vast number of pathological conditions. To mention some: exogenous poisons, including ether, chloroform, nitrous oxide; various forms of toxemia, as uremia, acidosis, eclampsia; endocrine disorders, infectious fevers; diseases of the intestinal tract, the peritoneum, the abdominal glands; diseases of the heart, the bronchi, lungs and kidneys; cerebro-spinal affections; migraine, tabetic crises, pregnancy, shock.

A striking coincidence stands revealed: any and all of the vast number and variety of pathological conditions that are associated with reverse peristalsis also act as exciting etiological factors of acute dilatation of the stomach. Thus, acute dilatation of the stomach and reverse peristalsis are linked together by definite clinical experience.

Duodenal Obstruction and Acute Dilatation of the Stomach. Duodenal obstruction is not a part of the pathological findings of acute dilatation of the stomach. At most, a few observers have noted a slight groove where the arteriomesenteric attachment is supposed to compress the duodenum against the spine. On lifting up

the bulky stomach, the contents rush down into the intestines.

Definite duodenal obstruction does not produce the syndrome, either in the clinic or in the laboratory. Light obstruction, for instance, the kind produced by placing a thin rubber band around the third portion of the duodenum, an obstruction that can be overcome by a column of water ten to fifteen centimeters high, may lead to the development of the syndrome. It is obvious that it is not the occlusion that matters. The essential factor is the irritation set up in the duodenal wall by the pinching of the rubber band. An area of increased tonicity is produced, the upper intestinal gradient is reversed, the digestive juices are backed up into the stomach, and all the associated phenomena follow.

The same mechanism may be uncovered in the clinical cases recorded as conclusive proof of the presence of secondary occlusion of the duodenum. As an example let us take the interesting case of Dragstedt (1931).

Excerpts from case. A robust man as a result of a trauma to the abdomen had to have twelve feet of the lower jejunum and upper ileum resected. The jejunum was brought to the abdominal wall as a fistula. The patient thus had a functioning alimentary tract consisting of the stomach, duodenum and about six feet of jejunum. For the first 48 hours there was profuse drainage from the jejumostomy opening. This suddenly ceased on the third day, and examination revealed a dilated stomach containing about 1,400 cubic centimeters of characteristic fluid. Aspiration of this fluid relieved the patient greatly, and shortly thereafter the drainage from the jejunostomy opening again became profuse.

The author concludes that the aspiration of the stomach contents relieved the compression of the duodenum by the distended stomach. He does not explain why the drainage from the fistula stopped in the first place and why the stomach got distended.

The stoppage of drainage and the dilatation of the stomach are obviously due to reverse peristalsis. And reverse peristalsis is known to be a common occurrence in the presence of a jejunal fistula of this kind. As a result of the aspiration, the stomach regained its tonus, normal peristalsis was reestablished and the patient was greatly relieved. The alternating change in the direction of the intestinal gradient was responsible both for the production as well as for the relief of the syndrome.

Suppression of Vomiting. Vomiting is a complex act. It is made up of voluntary and involuntary components, the former dominating in power. During the act, the cardia and fundus relax; contraction of the abdominal muscles, the diaphragm and the antral portion of the stomach forces the contents up into the esophagus, and from there a sudden expiratory movement carries them out over the closed rima glottidis.

The act of vomiting is not merely a measure of defense and protection against exogenous poisons; it is of a distinctly protective nature for the integrity of the stomach itself, even in those pathological conditions in which it is merely an associated reflex movement, the result of accidental stimulation of the vomiting center.

As long as the stomach can empty itself by vomiting, it does not get distended. If vomiting is suppressed or inefficient and some degree of atony is present, the stomach is helpless against the rush of fluids carried there by reverse peristaltic waves, and dilatation takes place.

Etiology. Suppression of vomiting may be due to extreme debility. Enfeebled patients, prone on their back, may lack vitality to clear the stomach. But few cases come under this head. Patients may die from various causes, though not of acute dilatation, and the very last breath they exhale may be associated with strong and copious vomiting.

In conditions where vomiting is very painful, as in pneumonia, fractures, operative wounds of the upper abdomen, patients try to suppress the act. A few possibly succeed. Suppression of vomiting is more common in the very toxic patient, when the vomiting center is depressed.

A body cast may interfere with vomiting.

Vomiting is commonly suppressed by the use of palliative drugs in the course of medical treatment. Nausea and vomiting belong to the most unpleasant experiences that "the flesh is heir to." The patient demands relief. Palliative treatment is not always the best, but it is the easiest. Many a case of acute dilatation of the stomach is directly the result of this sort of medication.

Opiates are indispensable for the relief of pain in the post-operative state. Due to the effect of the anesthetic or to the pathological state under treatment, reverse peristalsis is commonly present in the post-operative state. Reverse peristalsis and opiates are a combination that produces acute dilatation of the stomach. It is not surprising that from 60 to 70 per cent. of the cases occur in the post-operative state.

Prophylaxis. The syndrome is often the result of medical ministration and, as such, should be eliminated. Whenever sedatives or opiates are used or local anesthetics taken orally and the pathological condition present may be associated with atony of the stomach or reverse peristalsis, the soil is ripe for the development of the syndrome. Watch must be kept for the appearance of the earliest signs of distention and trouble averted by the prompt use of the stomach tube and aspiration.

SUMMARY

1. There are two forms of the syndrome: acute operative dilatation, when the stomach is distended by air, and acute secretory dilatation, when the contents are mainly fluid.

2. Acute operative dilatation is the result of a respiratory mechanism disorganized by unusual, difficult environmental conditions.

3. Associated swallowing movements are initiated that are synchronous with the expiratory movements. Expired air is forced into the stomach and distends the latter.

4. Inhalation anesthesia is the common etiological factor.

5. Acute secretory dilatation is the product of two factors: reverse peristalsis and suppression or inefficiency of the vomiting act.

6. Reverse peristaltic waves carry fluids that distend the stomach, if vomiting is suppressed or inefficient.

7. Due to the distention, the stomach loses its tonus, the reverse intestinal gradient gets steeper and the stomach becomes a dynamic barrier to the passage of the contents along normal channels.

8. Water and minerals are lost to the body and the characteristic metabolic and blood changes make their appearance. If the contents are aspirated, the stomach regains its tonus, normal peristalsis is reestablished and the syndrome is relieved.

9. Duodenal obstruction is not a part of the pathology of acute dilatation of the stomach; it provides no adequate explanation of the pathogenesis and needs not be postulated.

10. Many a case of acute dilatation is the direct result of palliative treatment of nausea and vomiting.

11. Reverse peristalsis and opiates meet most commonly in the post-operative state. The majority of cases of the syndrome occur in the post-operative state.

12. The stomach tube and aspiration should be used at the earliest signs of distention, whenever vomiting has been arrested and reverse peristalsis persists.

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THE SERVICE PROGRAM OF AMERICAN LEGION

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Mr. Chairman, Dr. Cary, Distinguished Gentlemen of the Medical Profession: I am indeed happy to be here tonight at this splendid dinner and to have the privilege of presenting to you men some of the ideals and principles of the organization that I have the honor to represent.

For several years, as Dr. Cary has stated, there was considerable misunderstanding between the American Legion and the medical profession. I believe that a portion of that misunderstanding might rightfully be placed on the doorsteps of the members of your profession who were eligible for this organization and who in the communities where the American Legion has met, have not taken an interest in or in many instances have not entered into the activities of that organization or tried to advise them along the lines upon which, it is very *apparent,* that we needed advice. Any mistakes that this organization has made in the past have been mistakes of the mind and not mistakes of the heart. We have tried to care for the men who were disabled in the war. Some years ago we recognized that in the department of Illinois there was some misunderstanding between the medical profession and the American Legion. The reason for the difference

Veterans' Service Committee Dinner, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 21, 1935.

of opinion was recognized by certain members of your profession who were valuable members of our organization. For many years men were appointed department surgeon who used only the title and meant nothing to the Legion other than to be recognized as department surgeons of the American Legion. Finally there were appointed to this post individuals who were interested not only in the American Legion but in the medical profession as well. Under their leadership and by their gathering the surgeons and physicians of this great state into an organization inside of the American Legion, if you please, they tried to bring about a better understanding between the two, and they have succeeded in so doing. I want to pay tribute here tonight to some of those individuals. I do not know that I repeat their names in the order in which they served. Our chairman here tonight, Dr. Fredrickson, is to blame for a great deal of the new understanding we have. Dr. Garm Norbury, Dr. Tom Williamson, and now Dr. Elmer Moseley helped to carry on the work, and to carry things just a little further. One of the most important, perhaps the most important activities we have in the Department of Illinois, is the care of children, and we have a distinguished member of your organization as Chairman of the Child Welfare Commission, Dr. Charles Schott. He has made an outstanding contribution to child welfare in this state and, in fact, in the national organization of the American Legion. I assure you gentlemen of the medical profession here tonight that so far as I know there is no intention on the part of this organization to extend the privilege of hospitalization to men who are able to pay for that hospitalization. I am sure, as Dr. Cary said a few moments ago, that he expressed the opinion of the majority of the leaders and members of our organization when he said that there was no intention in the mind of our national leaders to extend the privilege of hospitalization in government hospitals to those who are able to pay their way. They have cooperated in putting in a pledge or oath that men taking or receiving that assistance are unable to pay for the medical attention they receive. It is true in this case as in every other case that there are bound to be men who will sign any kind of oath to get something for nothing. We have been trying to cooperate to the best of our ability with the program of this medical association. I would suggest—carrying out the thought of Dr. Moseley—that you men in your communities take an interest in the affairs of the Legion post. You men are capable of directing the Post organization along the lines that it should be directed. We welcome you into our organization and we welcome your cooperation in our program.

We have been trying for this year in this great state of Illinois and in this Department to be of help to all the citizens of the community and to practice the ideal of this organization. We are interested in these communities. We are interested in building up the community, not in tearing down any portion of the community. We are interested particularly in the next generation. I wonder if you will bear with me for just a few moments while I talk to you about a thing which has been very near my heart during the past year, something that we have been trying to put into the fight to save some of the children of this next generation, the problem of juvenile delinquency.

I learned a few weeks ago that juvenile delinquency was on the increase in this state, that it is in every community. I learned that the cure we are trying to give them in the institutions of this state was not working. I learned from one source that 300 boys from Cook County and 300 from outside had left the institution at St. Charles. They were able to trace 270 in each instance and they found that 88 per cent. of the boys from Cook County and 45 per cent. from downstate had graduated into institutions of higher learning, Stateville, Pontiac, and other penal institutions.

We have heard a great deal about communism. It is a menace to this nation today, but in my estimation the greatest menace to the future of America with its fine American youth is juvenile delinquency. Thousands of boys are graduating from high schools and colleges with no place to be absorbed in industry. I have received some figures from Washington which have a bearing not only on communism but on juvenile delinquency. The government recently announced that there were 12 million heads of families in the United States unemployed. D. W. McCormick, Director of Immigration, in reply to a question propounded by Congressman Blanton of Texas, said there were over 16,000,000 aliens in America; three and one-half million illegally.

I only have to refer to one name, Bruno Richard Hauptmann, to prove the danger of these aliens who are within our borders illegally. Four and one-half million of those aliens are on the relief rolls of the United States. All of these figures contribute to the increasing juvenile delinquency that exists, because it is estimated there are 4 million aliens employed in the United States, and when our boys graduate from high schools and colleges there is no place in industry into which they can be absorbed. Many are easily drawn to a life of crime, because an idle mind, as has been frequently said, is the "Devil's workshop."

This is a serious question. Recently Congressman Blanton said there was no country on the face of the globe that would permit aliens on relief to stay in the country except the United States of America. However, when they tried to return the aliens at a cost of about a month and a half of actual relief which the country was giving, somebody in Washington stopped that program, although by shipping them back at cost of one and one-half months' relief they would have entirely eliminated them from the relief rolls of the United States. The organization to which I belong has always had a strong immigration policy. I believe when we get through with our St. Louis convention, we will have a stronger immigration program as well as a strong naturalization program, that after they have been here for a certain number of years accepting the privileges and benefits of this great government, if they are not willing to accept the responsibilities of citizenship they can return to the land from which they came. (Applause.)

The time that was allotted to me is now up, but I want to assure you members of the medical profession that this organization of the American Legion dedicated for God and country, is in your several communities ready to serve that community and we are ready to cooperate with you. We ask only that you give every consideration to the program that we present, and where you find that it does not entirely agree with the program of your organization let us try to get together and iron out our differences. We are ready, willing and anxious to cooperate with members of this great splendid profession.

I am happy to have had this privilege and I thank you very much for your kind attention.

127 N. Dearborn Street.

CARDIAC REVIEW OF 1934

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General Remarks: Riesman and Harris[1] stated that whether there is or there is not an "alarming increase" in deaths from organic heart disease, the fact is that heart disease stands at the head of the list. This makes it a definite problem in health conservation in the sense that efforts should be made to postpone as late as possible death from heart disease. Brooks[2] emphasized that the main asset in the care of patients with organic heart disease is optimism. Stone[3] stated that regardless of how one feels about the alleged increase in the number of deaths assigned to cardiac causes, there can be no real difference of opinion as to the importance of heart disease as the foremost cause of death. Bierring[4] advised that it is of the utmost importance that the patient accept the view that the aging process is a physiologic change and does not permit the same activities as in younger years. Brooks[5] pointed out that in the treatment of the failing heart, we must treat the patient as the whole and as an individual, not just the heart.

1. *Anatomy and Physiology:* Gross, Epstein and Kugel[6] described the age period changes that the coronary arteries and their branches undergo. The main coronary arteries thicken and stiffen with age. The myocardial arterioles show changes far less marked and the capillaries present very slight changes with age. Seecof, Linegar and Myers[7] presented chemical evidence that the left and right ventricles of the heart are different muscles. Coonse and Aufranc[8] demonstrated that rendering the intrapleural pressure more negative produces dilatation of the heart, a diminished rate of flow through the pulmonary circuit, a relative anoxemia, a slow pulse, an increased blood pressure, a fall in venous pressure, and a rise in body temperature. Bain[9] observed, by means of the histamine flush test, that the speed of circulation is slow in uncomplicated heart disease. Bohning and Plaut,[10] in 35 subjects with cardiac lesions, noted that in auricular fibrillation the total systole was definitely shorter and the total diastole definitely longer than in normal subjects. Richards and Barach,[11] from studies on 28 patients with cardiac insufficiency kept in 40-50% oxygen for continuous periods ranging from 7 days to 7 months, stated that the clinical indications for oxygen therapy in their relative order of importance are: dyspnea, restlessness, cardiac pain of the anginal type, arterial oxygen insaturation, cyanosis, and cough. Harrison, Friedman,

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Received for publication, Jan. 26, 1935.

Clark and Resnik[12] reported that the output of the heart per beat tends to be less during congestive failure.

2. METHODS OF CARDIOVASCULAR EXAMINATION

1. *Auscultation:* Lendon [13] reported that from a clinical aspect there are four types of systolic apical murmurs. 1. Constant murmurs, constant from cycle to cycle and from day to day; these are harsher and longer murmurs and are heard over the precordium and out to the axilla; they are the ones which are chiefly regarded as signifying mitral regurgitation. 2. Inconstant murmurs, soft and blowing in character, and often heard in one posture only, the recumbent; these vary from time to time, vary with exercise, and are usually audible over a localized apical area. 3. Extracardial murmurs as the pericardial murmur are short, superficial and have a scraping sound. 4. Cardiorespiratory murmurs are the commonest apical murmurs and may extend to the left axilla. Sosman and Wosika[14] demonstrated the position of the heart valves and their relation to the anterior chest wall in living subjects with abnormal hearts. This was done by the roentgen ray study of calcified aortic and mitral valves. Great variations in the position of the mitral and aortic valves occur as the heart enlarges or otherwise changes its relations to the chest wall. They feel that this has an important bearing on the localization and distribution of murmurs and is of great significance in the interpretation of physical signs.

2. *Other Methods:* Griffith, Chamberlain and Kitchell[15] observed venous pressure in health and in disease as to the practical significance and stated that in cardiac failure, whether of primary or secondary origin, it is always elevated. They added that in the prognosis of cardiac failure, venous pressure determinations are valuable, as a rise above 200 mm. of water has an unfavorable prognostic significance. Sola[16] considered the rise in venous pressure of great importance in the early diagnosis of cardiac decompensation. Harrison[17] reported that the cerebrospinal fluid pressure is markedly elevated in patients with congestive heart failure and that this pressure usually runs closely parallel to the venous pressure when the patient is in the prone position. Friedfeld and Fishberg[18] recorded that elevated venous pressure due to failure of the right heart is accompanied by an increase in the cerebrospinal fluid tension, due mainly to the engorgement of the intracranial and intraspinal vessels and probably also to the edematous swelling of the nervous tissues and the meninges.

3. *Electrocardiography:* Steuer[19] analyzed 50 autopsied cases in which there had been electrocardiograms of low voltage during life, and noted that the most significant and most frequent pathological finding was coronary sclerosis in 76% of the cases. In the remaining 24% of the cases, acute or chronic infections were the most important factors. France[20] analyzed 103 electrocardiograms characterized by normal sinus rhythm with a significant Q wave in Lead 3 and stated that while this is sometimes present in the absence of heart disease, it is very frequently associated with serious myocardial damage. Shookhoff and Douglas[21] studied the Q deflection in normal and abnormal electrocardiograms and concluded that a large Q wave in Lead 3 is caused by a change in the relative position of the ventricular musculature, for which many causes may be responsible. Wallace[22] stated that of 108 cases showing a significant Q wave in Lead 3, angina pectoris was present in 50% of the patients, hypertension and arteriosclerotic heart disease in 33%. McGinn and White[23] studied the duration of the QRS complex of normal and abnormal electrocardiograms in 500 cases and suggested a more satisfactory method of describing the complex. Scherf[24] stressed the great independence of the shape of the terminal, the ST, deflection in the electrocardiogram, but added that it is wrong to base a prognosis as to the life expectancy on such changes. Easby and Roesler[25] noted that certain changes in the S-T segment of the electrocardiogram occur very frequently in acuate rheumatic fever. Feldman and Hill[26] stated, after a study of the electrocardiogram in pregnancy, that one should bear in mind that at a certain stage of pregnancy left axis deviation or a large Q wave in Lead 3 or both may be found, and that these disappear as soon as the uterus empties itself. Goldbloom[27] evaluated clinically the precordial lead or Lead 4 in ambulatory cases of coronary artery disease and in acute coronary occlusion; he advocated the use of this extra lead routinely after a study of 8 cases, after it proved positive in 7.5% of the cases of coronary sclerosis and in 30% of the cases of acute coronary occlusion. Wood and Wolferth[28] reported 7 cases of acute cardiac infarction which showed huge T-waves in Lead 4, and these large waves disappeared at a later date in all of the cases.

4. *X-Ray:* Bishop and Roesler[29] cited the frequency of post-mortem findings of calcification of the aortic and mitral valves. They reported 3 cases in which the roentgen observation of these calcifications in the living were confirmed by autopsy. It is their belief that the roentgenologist can play a leading role in the recognition of valvular calcifications which are more frequent than is realized. Steel[30] presented 6 cases of chronic cardiac aneurysms with silhouette studies. When the cardiac aneurysm was well developed, the roentgenologic method was the only means of positive diagnosis, especially in those cases in which a history was not available. Wosika and Sosman[31] demonstrated calcified coronary arteries in 3 patients who suffered from angina pectoris. Levene, Wheatley and Matthews,[32] in the roentgen diagnosis of coronary disease, depended upon the recognition of changes in the contour and function of the heart produced by the impairment of the myocardium. Spark and Evans[33] stated that calcification in the heart valves may be present as the nodular type described by Monckeberg, and the presence of a landmark within the heart was of assistance in giving anatomical significance to the radiographic findings. As both coronaries arise from the sinuses of Valsalva of the aortic valve, it may be possible to map out the usual distribution of the arteries and to localize small areas of calcification as being in the course of these vessels.

3. SYMPTOMS AND SIGNS

1. *Edema:* Thomson[34] recorded the results of an investigation of the plasma protein and cardiac edema, and noted a distinct diminution in cardiac edema as 87.5% of the cases having a plasma albumin content less than 3.2%. In organic heart disease without edema, there was only a slight decrease in the plasma proteins. Plasma protein deficiency has an important part in the etiology of cardiac edema. Malnutrition was considered to be the main cause of the depletion, and it was suggested that patients with cardiac edema be given the maximum amount of protein in a diet compatible with their digestive powers. Wassermann[35] asserted that acute cardiac pulmonary edema is produced by a cardiac-central reflex in the region of the pulmonary capillaries with the exudation of serum into the alveoli, so that there is grave danger of primary respiratory death or of secondary heart failure at the height of these attacks. Salmon[36] refers to the neuroharmone theory of acute pulmonary edema, which he believes explains the relation of the condition to arterial hypertension. Because of the intimate relation, anatomically, between the sympathetic nervous system, the bulbar nuclei, the vagus center, the respiratory center, and the vasomotor nuclei, it gives rise to the vagotonic symptoms of bradycardia, fainting, polypnea, and dilatation of the pulmonary vessels, the most characteristic symptoms of acute pulmonary edema.

2. *Others:* Smith and Plunkett[37] reported 2 cases in which the symptoms of cardiac insufficiency were masked by those referable to the gastrointestinal tract, and concluded that these cases are often difficult to diagnose before the cardiac failure becomes pronounced or until they have received treatment for cardiac failure. Stein and Schwedel[38] noted interlobar effusions in patients with organic heart disease, and stated that these peculiar effusions were not roentgenological freaks but constituted a definite part in the history of chronic cardiac disease. Keefer and Mallory[39] summarized 22 cases of aortic aneurysm showing conspicuous pulmonary and pleural complications and reported that atelectasis, bronchopneumonia, organizing pneumonia, abscess or bronchiectasis, arose as the result of tracheal or bronchial compression or of direct invasion of the lung. Waring and Black[40] cited the clinical picture of dyspnea, cyanosis, and polycythemia, without evidence of valvular disease of the heart, suggesting the syndrome of obstruction in the lesser or pulmonary circulation. Criep[41] stated that the average length of life was only 14 months in cases showing definite symptoms and signs of cardiac asthma, based on a study of 21 cases. McGinn and White[42] reported 20 cases of mitral stenosis with attacks of acute pulmonary congestion with and without cardiac asthma; they explained that these symptoms and findings resulted when the heart was stimulated by greater work and the hypertrophied and dilated right ventricle propelled more blood into the pulmonary vessels than could pass through the stenosed mitral valve in the same unit of time. Harrison and his coworkers[43] made many observations on nocturnal dyspnea and cardiac asthma and added that the most common precipitating factor was cough, less frequently fear, abdominal distension, or warmth, each of these acting by precipitating a marked increase in the ventilation of the lungs. Cohn and Steele[44] investigated fever in a large number of cases of myocardial failure and stated that the fever was caused by mechanics involved in the heart insufficiency itself. King, Hitzig, and Fishberg[45] reported 3 cases of recurrent laryngeal paralysis in left ventricular failure and presented a suggestion that the cause of the paralysis may be regarded as dynamic dilatation of the pulmonary artery due to the engorgement of the lesser circulation. Urioste and Blanco[46] reported that the crises of sweating may occur as a clinical equivalent of angina pectoris and acute edema of the lungs; these sweating crises were abundant and generalized, or predominated in the anterior portion of the neck and chest, always accompanied by pallor, peripheral chilliness, tachycardia, and a sensation of distress or approaching death.

4. INCIDENCE OF HEART DISEASE

Perry[47] analyzed the cases of organic heart disease seen by the late Dr. Carey Coombs in the wards of the Bristol General Hospital during the years 1918 to 1929. Rheumatic fever was the etiological factor in over 55% Figures then were obtained for cardiac cases admitted to the various hospitals in Great Britain for 1932. Of 2,680 cases, the results were: congenital, 1.1%; rheumatic, 38.4%; ulcerative endocarditis, 2.3%; syphilitic, 6.5%; thyrotoxic, 10.7%; hyperpiesis, 12.7%; senile cardiosclerosis, 19.1%; functional, 3.8%; and various, 5.1%. Cohn and Lingg[48] indicated that the rise in the rate of circulatory disease depends largely on the rate in fall of the infectious diseases, not in early life but in the very decades in which a rise in the circulatory group has taken place. Bishop and Bishop[49] suggested that a better knowledge of coronary disease has been a large factor in initiating the studies that have placed emphasis on the heart. Arenberg[50] analyzed organic heart disease in male seamen and stated that it bears a similar relationship, from the standpoint of etiology, to that of the population at large with the exception of the greater incidence of the syphilitic group and a correspondingly lower incidence in the rheumatic and arteriosclerotic groups. Goodman and Prescott[51] examined 166,152 children between the ages of 14 to 17 years in New York City, and after extensive study, 528 (0.57%) were found to have organic heart disease. Flaxman[52] studied the incidence and etiology of 1646 cases of organic heart disease at the Cook County Hospital; the incidence was 1.7% of the hospital admissions and 7.2% of the medical admissions; 38% died in the hospital during this period; the common age was the 40 to 60 year period; most frequently in the sixth decade in the white patients and in the fifth decade in the colored patients. Hypertension was the most common cause regardless of race or sex; arteriosclerotic and rheumatic heart disease were more common in the white patients. Arteriosclerotic heart disease was five times as common in the white patients, and rheumatic heart disease was twice as frequent, while syphilitic heart disease was twice as common in the colored patients. Hypertensive, arteriosclerotic, rheu-

matic, and syphilitic heart disease accounted for 90% of the cases.

5. ETIOLOGY

1. *Congenital:* (a) *Septal Defects.* Roesler[53] reviewed 62 cases of interatrial septal defects and reported one case of his own; he noted that at least three-fourths of the cases also had valvular diseases which affected predominantly the mitral valve. Gross[54] investigated the patency of the so-called "anatomically open but functionally closed" foramen ovale and experimentally proved that under conditions of pressure preponderance in the right auricle over the left auricle, fluid and emboli may be transmitted from the right auricle through the foramen ovale into the left auricle; when the converse occurred, the valve-like action of the foramen prevented the transmission of pressure or fluid from the left to the right auricle. Halpert and Tennant[55] reported 2 cases of anomalies of the interventricular septum and the pulmonary orifice. Muir and Brown[56] observed 100 cases of congenital heart disease in school children and indicated that 40 had a patent interventricular septum because of the principal physical finding, a harsh prolonged systolic murmur of maximal intensity in the 3rd and the 4th left interspaces close to the left sternal margin. Favorite[57] reported a case of a three chambered heart, two auricles and one ventricle, with hypoplasia of the transposed aorta and a patent ductus arteriosus in an 18 year old white male, which terminated by rupture of a dilated pulmonary artery.

(b) *Congenital Complete Heart-Block:* Suzman and Campbell[58] gave an account of 8 cases and noted that this possibility should be remembered when treating children with a slow pulse; they reported that in spite of this abnormality the patients can and do lead an active life, surviving to adult life and longer. Yater, Leaman, and Cornell[59] reported a case studied by serial sections through the conduction system in which there was practically complete separation of the auricles and the ventricles by the central fibrous body where the specialized muscle body normally bridges the auriculo-ventricular groove.

(c) *Coarctation of the Aorta:* Grollman and Ferrigan[60] studied the cardiac output in this congenital anomaly and reported that the heart is capable of overcoming the anatomic defects by expelling the blood at a high pressure to supply the entire body provided an adequate collateral circulation is present. Stewart and Bellet[61] reported a case in a 26-year old white male in which sudden death resulted from a dissecting aneurysm with rupture of the aorta above the coarctation. Taylor[62] emphasized the radiological aspects of these cases especially where the clinical picture itself is not convincing. Pierce[63] described a typical case in a 30-year old white male who had a peculiar picture of decompensation and at autopsy an abscess of the mediastinum communicating with the thoracic portion of the aorta and esophagus was found. Other cases reported were those of Beatty[64] and Hardaway and Sawyer.[65] Brown[66] reported a case of a 30-year old female who had all the symptoms and findings of a coarctation of the aorta and developed a subacute bacterial endocarditis with a positive blood culture of streptococcus viridans.

2. *Rheumatic:* Hart, Wood and Daughton[67] noted that serious and permanent damage to the heart is evidenced in a surprisingly large number of persons with rheumatic fever in Piedmont, Virginia, as 138 or 69% of 200 cases of rheumatic fever had valvular heart disease. Small[68] advised that smaller doses of the aqueous extracts of the streptococcus cardioarthritidis be used in the treatment of rheumatic carditis, especially in those cases in which dangerous exacerbations of rheumatic fever occur. Paul, Salinger and Zinger[69] investigated the families of patients who had sustained an attack of postscarlatinal non-suppurative arthritis or carditis and noted a high incidence of the manifestations of rheumatic fever. Rothschild, Gugel and Gross[70] studied 161 hearts with evidence of rheumatic disease at some time; 106 showed evidence of active rheumatic infection; 103 of the 106 showed that the cause of death was heart failure, and they concluded that the majority of instances of heart failure in the first five decades of life in individuals who have a valvular defect can be attributed to an active infection of the myocardium rather than to the degree of the mechanical defect. Simons[71] reported 206 cases of rheumatic heart disease seen in the Louisville City Hospital and noted that the greatest number developed symptoms during the third and fourth decades of life and that 85% had shown some degree of decompensation before the 40th year of life. Easby[72] reported a case of subarachnoid hemorrhage in a 12-year old girl complicating rheumatic heart disease; the girl completely recovered from the coma without any residual neurologic symptoms. Friedberg and Gross[73] reported 4 autopsied cases of widespread periarteritis nodosa, so-called necrotizing arteritis, associated with rheumatic fever and rheumatic heart disease. Paul, Harrison, Salinger, and DeForest[74] studied the social incidence of rheumatic heart disease in 5758 public school children and noted that it was twice as frequent in pupils attending two urban public schools as it was among pupils of a similar age group who attended suburban and rural public schools. De La Chapelle, Greaf and Rottino[75] analyzed 119 consecutive rheumatic hearts obtained at autopsy in relation to the cardiac rhythm, and reported that the occurrence of auricular fibrillation had no relationship to the grade of mitral stenosis. Calvin and Nichamin[76] reported 2 cases of spontaneous rupture of the thoracic aorta in children and noted the definite relationship to rheumatic fever, as both had verrucous aortitis, and one showed a typical and the other suggestive findings of rheumatic myocarditis. Hawking[77] reported latent acute rheumatic carditis as noted at autopsy in 17 patients in whom the condition was not recognized during life, and concluded that in addition to those whose condition is diagnosed during life as rheumatic fever that 1.2% of other patients dying also had active rheumatic disease. Fraser[78] and Karsner and Bayless[79] demonstrated that rheumatic fever causes an irregularly distributed endarteritis of the coronary arteries. Willius and Smith[80] studied 79 cases of rheumatic heart disease at necropsy for the factors concerned in cardiac hypertrophy and concluded

that the increased work caused by the valvular defect was not the only cause of the hypertrophy, but other factors, as the length of time the heart was subjected to the lesion and the actual myocardial injury, exerted a definite but less important influence. Lisa and Chandlee[81] noted the clinical course in 6 cases of combined syphilitic and rheumatic heart disease; the course and the lesions were mainly rheumatic, and added that combined active infections have a much graver prognosis.

3. *Bacterial:* Held and Goldbloom[82] reported 4 cases of rapidly fatal acute streptococcus viridans endocarditis, all preceded by an acute infection of several days to several weeks duration; the reason why these cases had a rapidly fatal, instead of a protracted course, was that there occurred almost total loss of the reactive powers of the reticulo-endothelium of the endocardium. Ferguson, Murdock and Welch[83] described diptheroid appearing organisms recovered repeatedly from blood cultures during life in 2 cases of subacute bacterial endocarditis. Further bacteriological studies after autopsy showed that the streptococcus existed in two phases, a typical streptococcus phase and a diphtheroid phase; this was of etiologic value as the organism, isolated from blood cultures in the diphtheroid phase, changed under suitable conditions into the green producing streptococcus. Eakin[84] reported two cases of gonococcic endocarditis, one in a 29-year old male who developed chills and fever five months after the urethritis and expired in 6 weeks of aortic endocarditis; the other in a 32-year old female with multiple arthritis who developed the endocarditis 2 weeks later. Peters and Horn[85] reported two proven cases of malignant ulcerative gonococcic endocarditis, both fatal 5 days after the first evidence of the endocarditis. Israel[86] described a case of *Salmonella suipestifer* bacteremia with acute endocarditis in which the four-year old boy recovered and the murmurs over the cardiac area disappeared. Goldstein[87] reported a case of a 21-year old Italian female with classical signs of mitral stenosis and a severe acute arthritis who developed chills, fever and a leucocytosis; gram negative diplococci of the Neisseria pharyngis group were recovered from the blood stream in pure culture. Weiss[88] studied the relation of the portals of entry to subacute bacterial endocarditis in 364 cases and concluded that the streptococcus enters most frequently from foci of infection in the mouth and upper respiratory tract. He reported ten cases in which a history of tonsillectomy or tooth extraction closely preceded the onset of symptoms, and added that trauma about the teeth and pharynx produces a bacteremia which in the presence of previous cardiac disease causes a bacterial endocarditis. Dimitracioff[89] treated four cases of endocarditis lenta with autogenous vaccines; of the four, three are still alive, 2, 3, and 1½ years after recovery, and he urged that in spite of the many reported failures this method should be given further trial.

4. *Syphilitic:* Conner [90] reviewed the development of the entire subject from the earliest times and questioned whether the most has been made of the knowledge concerning this preventable cause of heart disease. Cooley and McNamara[91] reported a case of syphilitic aortitis with an aneurysm of the innominate artery and occlusion of the left common carotid artery in which the patient had the symptoms of dizziness, retarded mental reactions, and the sensation of smothering when lying down on the left side because of the unusual blood supply. Musser[92] advised, in syphilitic aortitis, a heavy course of metals and potassium iodide for 2 or 3 months before arsphenamine is given, to be later alternated with bismuth. In dilatation of the aorta and aneurysm, a minimum amount of treatment should be given in the early stages. In the treatment of syphilitic valvular disease without failure, large doses of potassium iodide should be given daily and with it, bismuth salicylate 0.2 gm. weekly for 3 months; then to give 0.1 gm. of neoarsphenamine once weekly for three months. In the treatment of syphilitic valvular disease with heart failure, treatment of the myocardial insufficiency is the first indication, and under no circumstances should neoarsphenamine be given as long as the patient is in a state of failure. Budnett and Rymer[93] in this country and Healey[94] in England emphasized the close relationship between neurosyphilis and cardiovascular syphilis. Sager and Sohval[95] histologically proved that combined syphilitic and rheumatic disease of the aortic valve does occur. Bruenn[96] analyzed 118 cases of cardiovascular syphilis and compared cases with coronary involvement and without this complication, but in which all had aortic insufficiency. No major differences were observed between the two groups as regarded symptoms, physical findings or other diagnostic criteria, but added that extreme stenosis of the coronary openings due to syphilis predisposes to sudden death. Van Muijden and Scherf[97] stated that there is a sixth type of angina pectoris, a form of syphilitic mesoaortitis, in which the inflammation of the coronary openings has produced a stricture of a severe nature. Pincoffs and Love[98] reported 15 cases of syphilitic ostial stenosis of the coronary arteries, in which from the time of onset of symptoms, the clinical course was unusually brief, characterized by a lack of response to therapy, a high incidence of anginal pain, and a marked tendency to terminate with sudden death.

5. *Other Infections:* Welford and Hoyne[99] reviewed 496 cases of diphtheritic myocarditis which devloped in 4,671 diphtheria patients, with a fatality of 62% in the 496 who had myocardial involvement. The mortality was highest, 70%, in cases which had nasal involvement and lowest, 11% in simple tonsillar diphtheria; 79% of all deaths occurred during the first 14 days of the disease, the average day on which death occurred being the tenth. Abdominal pain and vomiting with a falling pulse rate and blood pressure were of grave prognostic significance; and the only medicament of value in these extensive toxic myocardial degenerations was parenterally injected glucose. Mautner[100] demonstrated permanent cardiac conduction disturbances after diphtheria. Carden[101] descrbed nine cardiac and rheumatoid arthritic cases which occurred in one family group, where he believed that there was a definite direct contagion factor.

6. *Thyrotoxic:* McKinlay[102] expressed the opinion that the intensity of the hyperthyroidism may not be

great but its duration into the heart age gives a reasonable and physiologic explanation for the provocation of auricular fibrillation and the possible acceleration of the development of organic heart disease. Lahey and Hurxthal[103] presented evidence to prove that thyrocardiac patients in seemingly hopeless stages of decompensation can be restored to a great degree by subtotal thyroidectomy; their follow-up of 300 thyrocardiacs proved that at least 71.5% of patients with auricular fibrillation can be restored to and remain in normal rhythm following thyroidectomy. The mortality, 4.25%, was low for the serious situation; compensation was restored and persisted in at least 95% of the cases. Eggleston[104] emphasized that in the medical treatment of the thyrocardiac the results of cardiac therapy alone are not satisfactory. Golden and Brams[105] reported no variations in the venous pressure in thyroid dysfunction both before and after thyroidectomy where none of the patients had any evidence of cardiac embarrassment. Parkinson and Hoyle[106] stated that there is a thyrotoxic hypertension, a term applicable to a group of patients with hypertension in whom there are ruling features of tachycardia and chronic goiter.

7. *Myxedema:* Ohler and Abramson[107] reported electrocardiographic studies in 35 cases of myxedema; 13 showed abnormal changes in the electrocardiogram, such as low voltage and inverted T-waves in all leads, and the findings returned to normal in all of these cases following treatment with thyroid gland extract. Freeman[108] reported a case of chronic pericardial effusion occurring in myxedema, in which the pericardial effusion was rapidly absorbed when sufficient thyroid was given to bring the metabolic rate up to the accepted low normal. Lerman, Means and Clark[109] presented changes in the size of the heart and in the blood pressure of 18 patients with myxedema under thyroid medication; they added that it is characteristic of the heart to be enlarged and to undergo appreciable shrinkage as the disease subsides under thyroid extract.

8. *Hypertension:* Levine[110] examined pathologically 27 hypertensive hearts for myocardial changes and noted that only 11 had marked organic changes in the arterial tree; he suggested that one is forced to rely on an explanation of functional disturbances that acted over a long period of time and in a mild degree. Rosenthal,[111] in very extensive studies on atherosclerosis, stated that arterial tension as determined by the weight of the heart was an important factor in the production of atherosclerosis, but that atherosclerosis and hypertension are not synonymous, since in 48% of his cases atherosclerosis occurred without hypertension. Lissner[112] reported that palliative effects on the reduction of hypertension and its secondary symptoms followed the use of 10cc. of a 10% magnesium sulphate solution given intravenously daily. Ayman[113] used large doses of the crystalline ovarion hormone in cases of hypertension without any noticeable effect on the blood pressure. Bruen[114] gave large doses of bismuth subnitrate by mouth to 20 patients under excellent control without any demonstrable effect on the blood pressure. The DeCourcy's and Thuss[115] advocated partial bilateral suprarenalectomy in the treatment of essential hypertension; others have reported cases where section of the anterior spinal nerve roots,[116] sympathectomy,[117] and resection of the splanchnic nerves[118] were performed.

9. *Pulmonary:* Dyson[119] described a series of 18 cases of pulmonary heart disease in pneumoconiosis, with the diagnoses established by roentgenography and the electrocardiogram. This, he indicated, is not a rarity in anthracite coal miners. No attempt was made to explain why pulmonary heart disease occurrs in some cases of marked pneumoconiosis, but not in other cases equally marked.

10. *Coronary:* Hamman[120] remarked that the period has passed when one made a diagnosis of coronary occlusion without difficulty, because now the diagnosis is made too often when other conditions should be considered; he called attention to five conditions which are most often confused with coronary occlusion, as upper abdominal disease, pericarditis, pulmonary embolism, rupture of the aorta, and interstitial emphysema of the lungs. Levy, Bruenn, and Kurtz[121] reviewed 762 cases of cononary artery disease autopsied during the period from 1910 to 1931; in 97.2% of the cases arteriosclerosis was the cause, and syphilitic involvement of the coronary orifices was responsible in 5.7% of the cases. They suggested that the increase in coronary artery disease should not be a matter of concern but rather a source of satisfaction that men are surviving to an age when they develop disorders of senescence. Averbuck[122] reported 6 cases of pulmonary embolization in which the syndrome was not unlike acute coronary thrombosis, and suggested the possibility of a differential diagnosis with attempted surgical removal of the pulmonary emboli. Slater and Kornblum[123] reported a case of bilateral coronary occlusion with mitral stenosis which furnished an unusual example of the remarkable potentialities of the various compensatory mechanisms the heart and its blood supply can undergo. Sager,[124] from a study of 17 cases previously reported in the literature and a case report of his own, stated that in coronary thrombosis with perforation of the infarcted interventricular septum, the patient's symptoms were typical of acute coronary thrombosis but that the cardiac signs were identical with those of congenital patency of the interventricular septum. Barnes[125] stated that when the social structure and ideals of our civilization will allow individuals to live leisurely and to survive, then we may anticipate some amelioration of coronary sclerosis. Barach and Levy[126] again commented on the use of oxygen in the treatment of acute coronary thrombosis, and stated that its effective use may be responsible for the saving of life in addition to great symptomatic relief. Jacobi, Kenler and Silverman[127] reported a case of acute coronary occlusion in a 47-year old white female due to an embolus from an old thrombus of the femoral vein in the presence of a patent foramen ovale. DeCoursey[128] studied autopsied cases of sudden death and suggested the following rule: unless there were signs definitely indicating other disease in a white male over 40 years of age who died within three hours after the onset of either respiratory, cardiac, or gastric symptoms, the cause of death was coronary occlusion. Barnes[129] re-

ported two cases of painless coronary occlusion that occurred post-operatively, and in which the diagnoses were confirmed by the precordial lead (Lead IV) of the electrocardiogram after the conventional three leads had failed to show definite signs. Steinberg[130] first observed that a high nonprotein nitrogen in the blood occurred in association with coronary thrombosis, and that a nitrogen reading that remained high or continued to rise was an ill omen. White,[131] in discussing the non-painful features of coronary occlusion, stated that the responsibility of the physician is very great, both to insist on adequate rest after the infarction and to avoid unnecessary time and expense on the part of the patient if no infarction has occurred. Fishberg, Hitzing and King[132] studied the circulatory dynamics in 59 patients with recent myocardial infarction, and noted that two distinct mechanisms participated in the circulatory derangement, either shock or peripheral circulatory failure and heart failure or both.

11. *Miscellaneous:* (a) *Pregnancy:* Lamb[133] noted that the incidence of cardiac murmurs in pregnant women in his series of cases was 6.1%, of which 2.7% had organic heart disease. Rheumatic heart disease caused about 90% of the heart lesions, and the mortality was 7.5%. Lamb emphasized that prenatal care was the most important factor in the reduction of the mortality, and pointed out the dire need for follow-up studies to determine what happens to the cardiac mother and her child after the lying-in period. Stander[134] presented 81 cases of pregnancy and heart disease with only one death which was due to negligence of the patient and her husband. Twenty-four of these patients delivered spontaneously and 21 required full term operative deliveries, 11 of these being low forceps. Only 6 had premature deliveries, 5 spontaneous and one operative; there were 5 abortions, two inevitable and three therapeutic.

(b) *Diabetes:* Kalinberg[135] studied the heart by means of the electrocardiogram in 55 case of diabetes mellitus, and concluded that the best therapy for the diabetic heart lies in the treatment of the diabetes.

(c) *Adiposity:* Willius and Smith[136] reported a case of congestive heart failure in a 35-year old male weighing 550 pounds without any other evidence to indicate the cause of the insufficiency.

(d) *Surgery:* Purks[137] compared the causes of death in 60 patients with organic heart disease who had been subjected to operation with the causes of death in a similar group of 60 non-cardiac patients, and concluded that in the well treated cardiac, congestive failure is not a very significant factor as a cause of death following operation. The cardiac group differed from the non-cardiac group mainly in the presence of fatal coronary occlusion and in the greater incidence of fatal pulmonary complications, such as pulmonary embolization and infections.

(e) *Exertion:* Tung, Hsich, Bien and Dieuaide[138] examined 46 healthy Chinese ricksha pullers in a study of the effect of chronic exertion on the cardiovascular system, and noted definite cardiac enlargement in 45% of the cases, but found no indication that the enlargement constituted or predisposed to heart disease.

6. PATHOLOGY

1. *Myocardial:* Nelson[139] reported a case of acute diffuse myocarditis following exfoliative dermatitis in the course of treatment of a latent syphilis with arsenic. Maxwell and Barrett[140] reported a case of acute interstitial myocarditis following a severe dermatitis due to sulphur ointment, in which they emphasized the disastrous results that may follow the indiscriminate use of proprietary remedies. Salzman[141] reviewed 718 cases of spontaneous cardiac rupture gathered from the literature and reported 7 of his own cases; he noted that this condition most frequently occurred in an area of infarction 5 to 14 days following the coronary occlusion, and that most important was the differential diagnosis because the condition was most often confused with acute abdominal conditions. Clowe, Kellert and Gorham[142] reported a case of spontaneous rupture of the right auricle in a supposedly normal 43-year-old white male where trauma and excessive exertion were absent; serial electrocardiograms showed suggestive changes of coronary occlusion and pathologically showed a process essentially similar to that causing rupture of the ventricle. Elson[143] described a case of free ball thrombus in the left auricle in a 53-year-old white female with mitral stenosis and auricular fibrillation who had widespread and transitory disturbances in the peripheral circulation, such as cadaveric coldness, disappearance of pulsations, and marked cyanosis which involved the finger tips, toes, or even the tip of the nose. Barnes, Beaver and Snell[144] reported a case of primary sarcoma of the heart in which the diagnosis was made during life because of the peculiar existence of the signs of pericarditis, heart-block, and metastasis to the skeletal system. Burke[145] reported on 327 necropsies of patients with known malignant manifestations and found only 14 cases (4.3%) with metastatic involvement of the cardiac muscle. Lymburner[146] studied tumors of the heart and concluded that there are no pathognomonic signs or symptoms of heart tumors; one may strongly suspect a tumor of the heart when sudden and unexpected cardiac symptoms occur, which are progressive and regressive, especially if associated with an evanescent cardiac murmur, and the cardiac failure is not responsive to digitalis. Hirshboeck[147] reported a case of myocardial calcification subsequent to coronary occlusion in which the plaquelike calcification involved the area of the heart muscle supplied normally by the occluded descending branch of the left coronary artery.

2. *Endocardial and Valvular:* McGinn and White[148] stated many important clinical observations on aortic stenosis; that it is evident from an analysis of their material that all grades of aortic stenosis exist; that aortic stenosis even of considerable degree is common, particularly in males; that it is often caused by infection, especially rheumatism; that calcareous changes are found chiefly in older patients, no matter what the cause; that it is less serious than aortic regurgitation of high degree, being found in many old patients after years of valvular disease; that it is sometimes associated with considerably hypertension; and that, due to its variable symptoms and signs, it is often

overlooked when it should be diagnosed clinically. Bishop, Bishop and Trubek[149] analyzed cases of aortic stenosis of inflammatory origin and reported that the presence of associated cardiovascular abnormalities, such as coarctation of the aorta and patent ductus arteriosus, cannot be taken as presumptive evidence for a congenital defect underlying the calcified aortic cusps. Frothingham and Hass[150] reported a very unusual case, rupture of several normal chordae tendineae of the mitral valve in a 64-year-old white male, leading to incompetency of the mitral valve and resulting myocardial insufficiency. Morgan[151] reported a tumor of the tricuspid valve from a malignant teratoma of the testicle. Jaleski[152] reported a myxoma of the tricuspid valve in a 62-year-old female. Campbell and Carling[153] attributed the sudden death of their patient to a fibrinous polyp of the aortic valve.

3. *Pericardial:* Barton and Freeman[154] reported a case of pericardial hemorrhage complicating scurvy which caused the death of a mental patient who had been allowed to select his own diet. Comroe[155] reported the case of a 57-year-old white male who suddenly developed a massive hemopericardium which cleared up after 2 pericardial taps withdrew 1500cc. of almost pure blood; the cause remained unknown, but in spite of a normal electrocardiogram the author believed that the hemopericardium resulted from the rupture of a sclerotic vessel in a hypertensive individual. Heninger[156] stated that the relative frequency of metastatic malignancies to the pericardium was 7.5%; he emphasized the value and importance of cellular studies of the fluid from pericardial effusions as a diagnostic aid. Beck and Cushing[157] analyzed the syndromes of acute and chronic intrapericardial pressure; the acute phase is usually caused by hemorrhage from wounds of the heart or of the coronary vessels, rupture of the weakened myocardium, or from an aneurysm of the heart. The clinical picture of the chronic phase is that of Pick's polyserositis; surgery was carried out in 6 of the 9 cases of chronic intrapericardial pressure reported with alleviation of symptoms. Bellet, McMillan and Gouley[158] studied 17 cases of tuberculosis periocarditis clinically and anatomically and emphasized certain features; there was almost universal involvement of the mediastinal glands, with accompanying tuberculosis of the lungs or other viscera very frequently. In 14 of the 17 cases there were no murmurs audible, and in the other 3 rather inconspicuous systolic murmurs were present at the apex. Peel[159] described 6 cases of pericarditis associated with displacement of the RT segment of the electrocardiogram similar to that which occurs in coronary thrombosis. Schwartz[160] reported a case of a 50-year-old male who developed a pericardial effusion following an acute coronary thrombosis, which subsided with pericardial paracentesis and rest. Hitzenberger[161] recommended that pericardial puncture for the treatment of exudative pericarditis be performed through the pleura from the back, but before resorting to this route of drainage it should be determined by a test puncture whether the exudate is free from pus to avoid the production of a pleural empyema.

4. *Vascular:* Blalock[162] successfully sutured a wound of the ascending aorta in an 18-year-old colored male; this was a wound of the intrapericardial portion of the aorta caused by an ice-pick. Souttar[163] advocated the treatment of aneurysm of the innominate artery by proximal ligature as the risks of the operation entirely justify the gravity of the situation. Parks[164] reviewed the literature to show that very few references can be found to dynamic dilatation of the aorta, a condition which is common in aortic insufficiency, hypertension, hyperthyroidism, and congenital stenosis of the aorta; he reported one case in which the marked dilatation of the aorta, demonstrable by roentgen examination, was not found at the pathological examination. D'Aunoy and Haam[165] reported two cases of aneurysm of the pulmonary artery with patent ductus arteriosis, where both cases well demonstrated the importance of two factors in the etiology of aneurysm, damage to the vessel wall and increased blood pressure. Fowler[166] stated that obliterating thrombosis of the pulmonary arteries occasionally occurred as a complication of various cardiac and pulmonary conditions and that in certain of these cases which reach a quiescent stage the recognition of the condition may be beneficial. Greenspan[167] reported four cases of carcinomatous lymphangitis of the lung, all secondary manifestations; in two of the cases right ventricular cardiac failure was the direct result of the diffuse obliterative endarteritis of the pulmonary vessels. He suggested that in cases of right ventricular cardiac failure presenting no significant pulmonary or cardiac findings the possibility of a diffuse secondary carcinomatous lymphangitis of the lungs with an accompanying endarteritis of the pulmonary vessels should be considered. White, Badger and Castleman[168] reported a case of dissecting aneurysm of the aorta wrongly diagnosed as coronary thrombosis, and mentioned three clues that pointed to dissecting aneurysm; the maintenance of hypertension through the course of the acute illness, the excellent heart action throughout, and the absence of coronary T waves from the electrocardiogram during the first five days after the onset of the chest pain in a severely ill patient.

7. FUNCTIONAL DISORDERS

1. *Congestive Failure, Including the Use of Digitalis and Diuretics:* Christie and Meakins[169] demonstrated a marked decrease in the distensibility and slight impairment of the elasticity of the lung by taking simultaneous tracings of the volume of tidal air and of the intrapleural pressure in heart failure with congestion; an increase in the intra-abdominal pressure by means of an abdominal belt could overcome the functional difficulties in this type of breathing where there was a diminution in the excursion of the diphragm. Stroud, Bromer, Gallagher, and Vander Veer[170] tried the purified glucoside and the whole leaf preparation of digitalis on 25 ambulatory cases of established auricular fibrillation over a period of fifteen months, interchanging the various preparations; they concluded that no significant difference could be noted in the clinical pictures of the several groups. Smith and Luten[171] reported 16 cases of heart failure in advanced cardiac disease where they compared the effects of

glucose and digitalis and noted that glucose failed to restore compensation in any single case; according to their results glucose is indicated as an emergency measure in cases of acute or urgent heart failure and in cases of advanced chronic heart failure in which digitalis in adequate amounts has not restored compensation. Smith[172] used 175 cc. of salyrgan in one patient over a period of three years and felt that the drug was of inestimable value in removing ascites and edema and improving the circulatory efficiency of the patient. Dixson[173] reported a case of cardiac insufficiency with latent edema in an aged individual who had received at least 150 injections of salyrgan in 20 months with no demonstrable ill effects. Stroud and his co-workers[174] reported on the use of verodigen, a digitalis glucoside, which, they found, is biologically about 130 times as potent as dry standardized digitalis leaf; clinically it was noted to have many of the same characteristics as digitalis with the exception of a very much smaller dosage, 1/240 grain of verodigen comparable to 1½ grains of the powdered digitalis leaf, and the potency demanding very careful observation in its administration.

2. *Cardiac Neuroses:* Edwards and White[175] analyzed 5,000 consecutive patients with cardiac symptoms and signs seen by them in private practice in New England over a period of 13 years; they found 687 cases (13.7%) with definite neurocirculatory asthenia; 448 (65.2%) were uncomplicated by organic heart disease, and 135 (19.6%) were complicated by organic heart disease; there were 104 (15.2%) in which the functional condition was present with doubt as to the presence or absence of organic heart disease. 61.7% were females and 38.3% were males; 51% were in the age group 31 to 50 years inclusive. The types of heart disease found in this series were as follows: rheumatic, 44.4%; coronary, 21.4% and hypertensive, 18%. They concluded that even though organic heart disease is present, the symptoms may be entirely the result of a complicating neurocirculatory asthenia.

3. *Angina Pectoris:* Evans and Hovle[176] reported a series of 122 patients with angina pectoris (angina of effort) who had been observed over a period of 3 years with special reference to the comparative value of vasodilator drugs for the immediate treatment and prevention of the attacks. Glycerol trinitrite deservedly held first place in the treatment routinely; the use of this drug immediately before expected attacks was a safe means of preventing the pain; in their series, 84.5% of the patients obtained great benefit, and another 12.5% moderate benefit by using the drug in this manner; no harmful effects were noted in this type of treatment. Eppinger and Levine[177] reported 141 fatal cases of angina pectoris, 111 men and 30 women, in whom the average duration of the angina was 4.5 years, varying from a few weeks to 23 years; there appeared to be little difference in the duration of life and the age at death of patients having attacks while at rest or exclusively on effort. LaPlace and Crane[178] made observations in a series of 36 patients on the relationship of ischemia to the development of pain and fatigue in the contracting muscles of the arm; on the basis of these observations it was concluded that constitutional nervous sensitivity is not a significant factor in the occurrence of angina pectoris. Elliot[179] reported a case of a 55-year-old woman with chronic anemia and repeated epistaxis who had attacks of angina pectoris over a period of 3 years; these attacks became extremely severe with the occurrence of a febrile illness, and at autopsy a hypertrophied but otherwise normal heart was found, so that the cause of the angina was evidently the myocardial ischemia due to the anemia. Baltzan[180] clinically classified angina pectoris into four types; the maligna of recumbency marked by restlessness; the vera of effort marked by standstill; the simplex of oppression marked by asthenia; and the similans of hyperesthesia, marked by inframammary pain. White and Sharber[181] analyzed the past habits as to the use of tobacco and alcohol of 750 consecutive private patients with angina pectoris, and of 750 individuals without angina of exactly the same sex and age incidence and from the same walks of life. They concluded that neither the use nor the abstinence from tobacco or alcohol played an important role in the genesis of angina pectoris; in occasional cases the use of tobacco aggravated or precipitated an attack of angina pectoris, and in occasional cases alcohol helped to prevent or relieve such attacks. Nachlas[182] discussed three cases of arthritis of the cervical spine with pseudoangina pectoris, and pointed out that in these cases the pain was not substernal, was not brought on by dietary indiscretions, and not precipitated by emotional stress. Scherf and Schnabel[183] observed that atropine increased the frequency of the heart and stated that in angina pectoris great caution is necessary when atropine is used. Von Bergman[184] cited experiments and clinical observations to emphasize that oxygen deficiency in parts of the cardiac muscle is the most important factor in the development of angina pectoris. Edens[185] stated that strophantin given intravenously in the angina pectoris of older persons with coronary sclerosis is especially valuable. Riseman and Stern[186] described a simple and safe standardized exercise tolerance test for patients with angina pectoris on exertion, which proved to be of value as an aid in diagnosing doubtful cases and in evaluating both the condition of the patient and the results of therapy.

4. *Arrhythmias, etc.*—(a) *Paroxysmal Tachycardia, etc.:* MacKinnon[187] studied the rhythm of paroxysmal tachycardia by means of the electrocardiograph and noted that the common type is markedly regular, with such departures from the regular rhythm being so slight that the ear did not note them; certain cases of auricular paroxysmal tachycardia may be clinically irregular, but the electrocardiogram must prove this beyond dispute. Field, Barder, and Alexander[188] reported a case of an extreme tachycardia which persisted for four weeks and led to congestive failure in an otherwise healthy man; all the usual methods of interrupting the attacks had failed so that an attempt was made to terminate the rapid heart action by exposing the vagus nerves in the neck and stimulating them electrically, but there was no demonstrable effect on the heart. A partial digitalis heart-block resulted in

slowing of the ventricles and was followed by improvement; eventually the auricles gradually slowed, the heart-block disappeared, the cardiac response to vagal activity returned, and the patient recovered. Lundy and McLellan[189] reported 3 cases of paroxysmal ventricular tachycardia of their own and reviewed 149 cases from the literature. They noted that the basic features were many; males developed it twice as often as females; that no demonstrable heart disease was present in 14% of the cases, and that the prognosis was very grave in those due to digitalis excess and only relatively less so in the other types. Prinzmetal and Kellogg[190] stated than paroxysmal ventricular tachycardia may often be differentiated from the auricular type when there are jugular pulsations at a slower rate than the apical rate; this sign has certain limitations but can be applied to about 66% of the reported cases. The coexistence of auricular fibrillation was the only important condition which rendered the sign valueless. Elliot and Fenn[191] reported an unusual case of long continued ventricular tachycardia in a 19-year-old obese white female who had five paroxysms that lasted a total of 59½ days; all attempts failed to stop the paroxysms of such unprecedented duration.

(b) *Auricular Fibrillation and Flutter:* Bramwell[192] reported a case of auricular fibrillation following a head injury in an otherwise healthy miner; this was only advanced as a theory which the author hesitated to accept since the fibrillation persisted for four weeks and then promptly yielded to quinidine therapy with no tendency to recur. Mohler and Crawford[193] studied the hearts of 15 fibrillators and 7 non-fibrillators with mitral valve lesions along with the hearts of 9 fibrillators with arteriosclerosis as the etiologic factor; nothing was found to indicate that the type of pathologic lesion could be responsible for the onset and continuation of the fibrillation. The etiologic factors determined the type of pathologic changes in the heart to a greater extent than did the presence or absence of fibrillation. Ernstene and Mulvey[194] reported that 16 (7%) of 213 patients with hyperthyroidism had auricular fibrillation during the preoperative period; while postoperative fibrillation occurred in 31 (16%) of the 197 patients who had normal rhythm before the operation. The age of the patient, the type of goiter, and the duration of the hyperthyroidism appeared to be the most important predisposing factors to the development of postoperative auricular fibrillation. The degree of elevation of the basal metabolic rate was of little significance; postoperative fibrillation was more common in the thyrotoxic patients with adenomatous goiter than in those with the hyperplastic type. It generally began during the first 60 hours after the operation, rarely caused circulatory embarrassment, and normal rhythm was usually established spontaneously within 48 hours. Friedlander and Levine[195] analyzed 35 cases of auricular fibrillation and 4 cases of auricular flutter in which no other signs of cardiac disease were demonstrated; these composed about 6% of all the patients with auricular fibrillation, and 20% of all those with auricular flutter seen in private practice. 43.6% were over 50 years of age, and there were only 3 females in all; the inciting factor was elicited in 15 cases and given in the order of frequency were exertion, gastrointestinal disturbances, alcohol, and upper respiratory infections; digitalis diminished the frequency of transient attacks of fibrillation, but was practically ineffective in restoring normal rhythm in the permanent group where quinidine was very effective in restoring normal rhythm. These irregularities may be due to the "trigger mechanism" of neurogenic origin, and this study emphasized the fact that auricular fibrillation and flutter must be regarded in some cases as benign or functional in origin. Campbell and Suzman[196] reported a case of rheumatic heart disease with auricular flutter of six years duration which suddenly reverted to normal rhythm, continued for 3 months, and just as suddenly returned to the circus mechanism of flutter.

(c) *Quinidine Therapy:* Maher, Sullivan and Scheribel[197] administered quinidine sulphate to 19 patients; 10 received 30 grains orally per day, 3 received 60 grains orally per day, and 6 received intravenous of 3 to 5 grains, all without general toxic effects. The electrocardiogram in the majority of these patients showed changes only in regard to the T waves, within 24 to 72 hours if orally administered and immediately if given intravenously; these changes varied from a mild flattening to sharp inversion of the T waves and the duration of the effect varied from 3 to 6 days on oral administration and 3 hours on intravenous administration. Sweeney[198] estimated that in about 60% of the carefully selected cases of auricular fibrillation, quinidine causes a reversion to normal rhythm; if the reversion does not occur in the first few days, the drug should be continued for 10 days and after a rest period of 10 days the drug may be tried again, but if the first trial is not successful, subsequent trials are more likely to fail. Jezer and Schwartz[199] reported an unusual case of transient amblyopia and of an ectopic rhythm resembling ventricular tachycardia following the administration of quinidine sulphate for auricular flutter. Schwartz and Jezer[200] administered quinine hydrochloride and quinidine sulphate intravenously in graded doses to two patients with auriculoventricular dissociation who were subject to transient seizures of ventricular fibrillation; from this study they stated that the use of such drugs intravenously is contraindicated in such patients because transient periods of ventricular fibrillation were precipitated in the very patients who are subject to such attacks.

(d) *Heart-Block.* 1. *Complete or Auricular-Ventricular:* Gilchrist[201] studied the action of amyl nitrite in 7 cases of complete heart-block, and concluded that a negative response, no change in the bradycardia, favored such a diagnosis; yet a positive response, an increase in the ventricular rate, did not exclude this diagnosis. Thomsen[202] reported a case of sinus arrhythmia with Adams-Stokes syndrome, and stated that this syndrome is not exclusively connected with complete heart-block, but may occur with sinus arrhythmia and with sino-auricular block which are regarded as benign functional disturbances. Perlstein[203] reported a case of complete heart-block following influenza, in which a syncopal attack was induced following

the subcutaneous injection of 1:1000 adrenalin chloride. Strong[204] reported a case of paroxysmal ventricular tachycardia complicating complete heart-block; this was in a 53-year-old white female who had had a thyroidectomy six months previous to the appearance of the block, and the ventricular tachycardia that appeared later. Yater, Barrier and McNabb[205] studied, by serial sections, an unusual case of acquired heart-block with Adams-Stokes attacks dependent upon a defect in the interatrial septum; the heart-block was due to a fibrosis of the Bundle of His as it ran in the very edge of the interventricular septum defect. Gilchrist[206] noted the effects of body rest, muscular activity, and induced pyrexia on the ventricular rate in complete heart-block; he concluded that the ventricular rate in these cases is not fixed, but under conditions of rest fluctuates through a range of rate more or less peculiar to the individual; and that the important factor in promoting myocardial efficiency in these cases is the ability to quicken the ventricular rate in response to the demands of physical exertion. Gordon[207] analyzed 9 cases of complete heart-block and suggested that the diagnosis can be made clinically based on the following features, listed in the order of importance, as a slow pulse with regular rhythm, enlargement of the heart, high systolic blood pressure, a wide pulse variation pressure, history of syncopal attacks, variability of the first heart sound, and a capillary pulse. Hill and MacKinnon[208] reported a case of heart-block in which Adams-Stokes attacks were associated with Cheyne-Stokes respiration. Perry and Rogers[209] reported a case of complete heart-block caused by a lymphangio-endothelioma of the heart.

2. *Intraventricular Heart-Block:* Lewis[210] determined the nature of the physical signs present in 20 patients with bundle-branch block and in 3 patients with atypical block of this type by means of records of the heart sounds and by apex electrocardiograms; he concluded that the nature of the physical signs present was not such as to permit their use as diagnostic signs of bundle-branch block. King[211] analyzed 155 cases of bundle-branch block of varied etiology; the important functional disorders in the order of incidence were auricular fibrillation, bundle-branch block, A-V heart-block, and auricular flutter. King considered the prognosis in this type of block very grave, regardless of the etiology, although it appeared best in those cases of rheumatic origin. Its occurrence seemed to add nothing to the gravity of the prognosis of syphilitic heart disease; and bundle-branch block should be considered one of the rather common, as well as important, clinical entities. Perry[212] observed the onset of bundle-branch block with the occurrence of coronary thrombosis 45 hours later. Bayley[213] stated that bundle-branch block is a common lesion; of 70 case records of this lesion that he examined, only one instance was encountered in which the routine physical examination suggested a bundle-branch block. Von Deesten and Dolganos[214] presented 5 cases of atypical bundle-branch block showing typical curves; one patient was alive at the end of 11½ years at the age of 72 years; another was alive at the end of 8½ years at the age of 54 years; 4 had no cardiac symptoms at the time of writing; numerous electrocardiograms in 4 of these patients have remained the same through many years; hypertension was present in only one of these patients. Willius and Anderson[215] reported a case of transient, recurrent, complete bundle-branch block which they felt denoted that the heart still had the ability, probably through spontaneous augmentation of its own circulation, to recover sufficiently to permit relatively normal conduction.

3. *Sino-Auricular Heart-Block, etc.:* Marcellus[216] reported an autopsied case of migratory pacemaker in a 50-year-old white male who died 2½ years after the condition was recognized by means of a routine electrocardiogram. Light[217] reported a case of sino-auricular block with ventricular escape in which he pointed out certain peculiarities in the conduction system. Coogan[218] analyzed an unusual case of coupled ventricular beats in a 38-year-old female that was presumed to be on an emotional basis. Duchosal and Sciclounoff[219] reported a case of intermittent nodal rhythm in the course of scarlet fever.

8. PROGNOSIS

Viko[220] attempted to evaluate certain prognostic data in arteriosclerotic heart disease more as a plea against an undue attitude of hopelessness in judging the outlook for this type of heart disease; of 153 patients, 117 males and 36 females, ages 46 to 89, average 67.5 years, 28 expired with the anginal syndrome, 33 from congestive heart failure, and 15 from non-cardiac causes, with a total of 77 still alive. Falk[221] suggested four observations that help in evaluating the ultimate prognosis in heart disease; 1. The degree of effort or stress required to produce dyspnea or anginal syndrome; 2. The appearance of clinical signs known to have an ominous significance, such as gallop rhythm, pulsus alternans, coronary occlusive episodes, paroxysmal nocturnal dyspnea, and severe congestive failure not responding well to digitalis, diuresis and rest; 3. The presence of marked myocardial enlargement with a history of gradually lessening reserve; and 4. Evidence of progressively abnormal changes in serial electrocardiograms.

9. SPECIAL TREATMENT

Total Ablation of the Thyroid Gland: Friedman and Blumgart[222] reported on the necessity for total ablation of the thyroid gland, if such a procedure is performed in chronic heart disease; this was emphasized by the failure to benefit such patients by subtotal thyroidectomy, unsuccessful attempts to remove residual fragments at a subsequent operation, and the ineffectiveness of roentgen irradiation on the remaining tissue. Blumgart and his co-workers[223] stated their conception of a hypothetical case of congestive heart failure that they would consider a favorable candidate for this operation; between 20 and 50 years of age, with arteriosclerotic or rheumatic heart disease and a basal metabolic rate of about the average normal, with no evidence of bronchiectais, severe renal insufficiency, active rheumatic fever, or recent coronary thrombosis, who has suffered for several years from decompensation on slight exertion so that he is unable to work in spite of medical and hospital treatment; his condition

has not become rapidly worse, but he is incapacitated, yet always regains compensation after resting in bed for several weeks, indicating some cardiac reserve. The hypothetical patient with angina pectoris has attacks on slight exertion, but not at rest, and does not show any of the unfavorable factors mentioned above. Weinstein and his colleagues[224] described observations on the immediate post-operative relief of chest pain after total thyroidectomy in 19 patients, and suggested that complete bed-rest should be enforced despite the early subjective relief experienced by the patient, until the basal metabolic rate shows a significant lowering. Eppinger and Levine[225] stated that in the postoperative care of patients following total thyroidectomy, three complications may occur; hoarseness and aphonia, which is rare; postoperative tetany, which is uncommon; and mild symptoms of myxedema which occurs in almost all of the cases. They further suggested that these patients should be given the same sort of medical advice as is given to the cardiac patients in general, except where improvement has occurred to permit greater activity. Brenner, Donovan, and Murtagh[226] reported on six patients who showed slight to fairly marked improvement following total thyroidectomy for congestive heart failure and angina pectoris, but felt that the cases were too recent for permanent results to be judged.

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WHY MOSQUITOES CARRY TYPHOID

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In a great trial which held the front pages of Metropolitan dailies for many weeks, a quarter of a century ago, the erudite presiding judge ruled it was not important whether or not what the accused had been told was true because if it were false and he believed it, it would have the same effect as if it were the truth.

Likewise in gaining the support of the man on the street in the promotion of public health, it makes little or no difference how a disease is transmitted; the significant thing is his belief which determines the quality of his cooperation and motivates his action. The leader of the community who believes smallpox is due to filth will not advocate vaccination to eradicate the disease. Performance rarely exceeds knowledge.

To an extraordinary degree the erroneous beliefs that malaria is acquired by drinking water containing it and typhoid fever is carried by mosquitoes symbolize the superstitions and misconceptions in regard to health and indicate the inadequacy of education in hygiene. Prospective freshmen repeatedly attribute typhoid fever to

Read before Section on Public Health and Hygiene, Illinois State Medical Society, Rockford, May 22, 1935.

mosquitoes. Bonnell,[1] in a survey among high school students in four states found that 59.4% thought malaria could be acquired by drinking water from wells or cisterns that have been contaminated with it. Recently, Rhoton[2] has noted that 81% of 2,379 prospective teachers did not believe typhoid fever was caused by the typhus bacillus.

Where eight out of ten prospective teachers have so little knowledge of the cause of as well known a disease as typhoid fever, it should occasion no surprise that they should also think that character is indicated by the shape of the head, personality influenced by the planets, a broken limb healed by faith, mental disease contracted by thinking about it, or that the removal of the tonsils prevents goiter.

Numerous surveys of the knowledge of high school and college students show widespread belief in erroneous, unscientific, and dangerous health practices. Many of their prevalent beliefs are of ancient origin and have become a part of the social heritage of the race. These misconceptions have been seeded by social suggestions and religious instruction, cultivated in the soil of misinformation, and brought to full fruition under the influence of pseudo-scientific information dispensed as high-pressure advertising.

The samplings of health knowledge by Bonneli,[1] Conklin,[3] Gould,[4] Lundeen,[5] and others indicate that traditional educational agencies functioning as at present can not eliminate the superstitions and misconceptions concerning health now widely prevalent in young people who have reached our high schools and colleges, who pass as educated, and many of whom will become teachers in our public schools.

The above observers agree that their most significant findings are the great influence superstition has upon the average individual's conception of hygiene and the remarkable lack of correlations between intelligence and credulity. Lack of adequate information and the great tendency to accept fable as fact were found in a large measure to explain the health misconception so common in high school graduates.

Rhoton[2] reports that graduates from approved institutions for training teachers believe in the reliability of corns for predicting rain, of a woolen sock to cure a sore-throat, and of the toad as a cause for warts. He found evidence that commercial advertising is a fruitful source of erroneous belief concerning various aspects of health. Of the group he studied, 79% believed pain in the back is indicative of kidney trouble, 54% that the use of supports was the best treatment for weak arches, and 51% thought exercise would correct failing eyesight.

While all questionnaires and tests have their special limitations, they nevertheless provide samplings which give dependable information clearly indicative of conditions and trends. Such facts as are obtainable through them show definitely that superstition, tradition, and commercial advertising are apparently as potent at present as scientific knowledge in determining the health beliefs of high school graduates and prospective teachers.

Misconception Not Enough. We need to examine only the findings of the draft at the time of the World War, mortality rates, morbidity statistics, the incidence of avoidable ailments, and the occurrence of numerous defects in high school graduates to note with certainty the great need of health education to promote normal development, mental poise, and a sense of social responsibility.

The scourge of venereal disease, the increase and tendency of cardio-vascular-renal disease to occur early in life, the incidence of cancer, the ever-mounting casualty from automobile accidents, the widespread prevalence of dietetic insufficiency, et cetera, are conclusive proof that the only escape from preventable disease and the possibility of keeping senility beyond "three score and ten" is education which will give the individual the full benefit of available scientific knowledge.

Further prevention of physical defects and further reduction in death rates depend upon scientific fact and upon instruction by teachers with an adequate background in applied biology, chemistry, and physics. The hope of medicine, social betterment, and thrift is in the employment of such teachers. They must have training and practice in the principles of pedagogy and be able to appreciate that they have the sacred obligation to give their pupils ideals, habits, and attitudes which will keep them physically fit, mentally at their best, emotionally stable, and morally sound.

A good deal may be accomplished between the

ages of six and sixteen, but many times what parents have failed to do for their children in the first five years of life leads to consequences that the ablest physician can not undo. The golden opportunity to produce a normal physique and to lay the foundation for a well-balanced personality is pre-natal, natal, and pre-school. A well-adjusted individual is largely motivated parental knowledge.

Isolation, quarantine, and sanitation have had their epochs and still play an important role in the promotion of physical welfare and in social improvement, but public health in our complex society is personal. It is dependent upon scientific health education without which it can not obtain the cooperation of every individual and must largely fail.

The studies of Cairns,[6] the results of numerous investigations,[7, 8] and our own experience warrant the conclusion that high school graduates do not realize the significance of the common diseases of childhood. They lack appreciation of the importance of adequate nutrition, are deficient in their knowledge of the simple measures of health promotion, and often fail even to recognize conditions which produce eye strain. They do not know the essentials of sanitary environment and are unprepared to assume responsibilities in life which they will be unable to escape. A great number of them have misconceptions of matters pertaining to health which will inevitably have serious consequences for themselves and those under their care.

Health Education of High School Graduates. Recognizing the wide prevalence of misconceptions of matters pertaining to health and lack of knowledge concerning it, we have endeavored to determine as accurately as possible how much and how well effort is now being made in public school systems to provide our leading citizens of tomorrow with the information they need to preserve their health, protect their families, and to function as intelligent members of a society which grows increasingly complex and involves greater and greater social responsibility.

In our attempt to ascertain what training high school graduates were receiving in hygiene or other subjects which might give them knowledge bearing upon health we have studied the records of a total of 2,220 students. Of these, 37 or 1.6% returned questionnaires which were too incomplete to be of value in our investigation.

It will be seen from Tables 1 and 2 that only 153 or 7% of the 2,183 who furnished the data requested had had hygiene in high school and all of these were taught by teachers who were giving instruction in other subjects.

TABLE 1. SCIENCES TAKEN BY 2183 HIGH SCHOOL GRADUATES

	Number	Per cent.
Hygiene	153	7.00
Biology	1196	54.77
Physiology	480	21.98
Chemistry	1250	57.25
Physics	1336	61.19
General Science	1264	57.90

TABLE 2. FULL OR PART TIME INSTRUCTION

	Full Time		Part Time	
	No.	%	No.	%
Hygiene	000	00.0	153	100.
Biology	828	69.2	368	30.8
Physiology	230	47.9	250	52.1
Chemistry	808	64.6	442	35.4
Physics	883	66.1	453	33.9
General Science	730	57.8	533	42.2

Of the total of 2,183 prospective freshmen, 733 or 3.5% had had some hygiene or health lessons in the grammar school. It was most likely of satisfactory grade for the age of the pupils to whom it was given but obviously too elementary and too insufficient for an educated man or woman who has to live under the demands of our present civilization.

A little more than half of the 2183 high school graduates had had biology but of these 368 or 30.8% had been taught by teachers also giving instruction in some other subject. The amount of health education which high school pupils receive through biology will vary with the instructor and the text-book used, but is usually altogether inadequate for the responsibilities they will have to assume in life.

Only 480 or 21.98% of high school graduates had had physiology in high school and more than half of these were taught by teachers who also gave instruction in one or more other subjects. Where an instructor teaches several subjects, it is impossible to say in which one his primary interest lies, but as a general rule high school teachers are better prepared to teach English, mathematics, or history than either hygiene or physiology. Because physiology is the science of organic function, it is frequently taught with little emphasis upon personal hygiene, no consideration of sanitation, and no discussion of the control of communicable disease.

General science is increasing in popularity as an elective subject in high school. Of the 2183

registrants studied, 1264 or 57.9% took it in high school. This subject is usually a mixture of physics, chemistry, biology, physiology, and nutrition. As health education for high school pupils, the vast majority of whom will go no farther with their education after graduation, it offers samples of the health education they should have but is entirely insufficient to prepare them for the responsibilities they will have to assume in their homes and in their communities. Of the teaching in general science 42.2% was given by teachers giving instruction in other subjects.

Physics was taken in high school by 1336 or 61.19% and chemistry by 1250 or 57.25%. These subjects are usually taught by the same instructor who generally gives his entire time to them. In many high schools, students are required to have a certain amount of science to meet the regulations for graduation but chemistry, physics, or both are frequently considered as satisfying this requirement. It is possible, therefore, for pupils to graduate from high school without having biology, hygiene, or physiology although neither chemistry nor physics provides them with substantial knowledge of even the elements of personal and community health.

Division of Labor in the Teaching of Hygiene. An examination of Table 2 reveals that of the 2183 high school graduates studied not one of them had been taught hygiene by a teacher who gave his entire time to the subject. Of the 153 pupils who had taken hygiene only 14 received instruction in it in connection with biology or physiology. A total of 124 or 81% had been taught by teachers of physical education.

TABLE 3. SHARING OF INSTRUCTION IN OTHER SUBJECTS BY HIGH SCHOOL TEACHERS OF SCIENCE

	Hygiene	General Science	Biology	Physiology
English	2	14	13	11
Physiology	7	17	40	...
Mathematics	4	57	31	19
Physics	2	52	24	6
History	3	25	18	16
Biology	7	150	...	51
Physical Ed.	124	42	19	51
Agriculture	1	18	24	27
Physiography	2	6	4	52
Chemistry	1	52	26	...
Astronomy	...	2	...	...
Chem., Physics	...	53	10	10
Auto. Mech.	...	1	...	...
Home Ec.	...	24	3	17
Civics	...	1	1	...
Elec. Sci.	...	1	...	...
Hygiene	...	1	3	2
Bookkeeping	...	1	1	...
Manual Tr.	...	4	...	1
Soc. Science	...	1	...	1
Music	...	4	1	1
Economics	...	3	...	3
Com. Geog.	...	2	6	10
Latin	...	1	9	3
Spanish	...	1	1	...
Gen. Science	...	...	126	13
French	...	...	1	1
All Subjects	...	...	2	2
Geology	...	...	1	...
Com. Law	...	...	2	2
Geography	...	...	2	...
TOTAL	153	533	368	250

The practice of drafting whoever might be willing to attempt to teach hygiene and sanitation is clearly shown by the fact that teachers of English, mathematics, physics, history, agriculture, physiography, and chemistry were given an opportunity to instruct high school students in preventive medicine. Special training in these subjects does not provide a teacher with an adequate background to give instruction in personal and community health.

The greater part of the small group of high school graduates who have had some instruction in health education received it from their instructors in physical training usually as occasional talks on personal hygiene. Many of the athletic directors who are in charge of physical education have had elementary courses in anatomy, physiology, and hygiene. If they were permitted to give their undivided attention to health education, they should in time do as creditable work as many of the teachers of physiology or biology but they have other activities and are faced with the stern necessity of frequently producing winning teams or hunting for another job with which to support their families. Under such circumstances they are entirely too busy to give hygiene the attention its importance demands.

There are five essentials for the proper teaching of health education in high schools, namely, 1. a thorough background of the fundamental sciences of biology, chemistry, and physics, 2. knowledge of physiology, bacteriology, psychology, sociology, and economics, 3. an understanding of the principles, psychology, and philosophy of education, 4. proper facilities, and 5. an opportunity to keep up with the progress of preventive medicine and sanitary engineering which make it possible for man to control his environ-

ment more readily and to adjust himself to it.

The curricula of many colleges and universities meet the above requirements and offer the prospective teacher of hygiene an opportunity to get the background of science and pedagogy necessary to teach health to high school students who tomorrow will be determining the destinies of their communities. The demands of our complex society should obviously exclude the drafting of the educational butcher, baker, and candlestick maker to teach a fundamental subject for which they have little training but which is to provide the individual with knowledge essential to protect himself, safeguard his family, and to function as an intelligent citizen in movements for social welfare.

Until prospective teachers are required to have a proper scientific background to teach health education, are trained in the selection of subject matter and its presentation, and are employed in the public schools to teach biology, physiology, and hygiene, the public will receive only a small part of the great benefit to be derived from research paid for by taxation and by philanthropy. So long as boards of education are unprepared to provide proper instruction in hygiene in high schools, the successful practice of medicine will continue to become increasingly difficult, health administration will lack adequate financial and moral support, fads will thrive, quackery will grow more influential, and mosquitoes will carry typhoid.

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DISCUSSION

Dr. Lloyd Arnold, Chicago: Dr. Beard and I are connected with the same university but on a different campus. I have quite a lot of contact with him dealing with the various subjects. At the time we were carrying on quite a learned correspondence on the sanitation of schools, right in the middle of it I got a letter from Dr. Beard wanting suggestions for a paper on the program entitled "Do Mosquitoes Carry Typhoid." There were three paragraphs. I read the first paragraph, and that was the sense of it. I was interrupted and laid the letter down, and picked it up again and read the paragraph again and I was again interrupted, about three times. I was wondering about it. I couldn't think why he wanted to read a paper before the State Medical Society on "Do Mosquitoes Carry Typhoid." Finally I got back and read all of the letter, or the second paragraph, and I realized that it wasn't senile atrophy of the brain at all. He went ahead and explained why he wanted just that title.

I think he has called our attention to the deficiency in our education that we all so realize. Most of us doing university work in the higher educational fields rather ignore the lack of proper instructions to the lower age levels or rather, take it for granted it is being done. From the amount of advertising that is going on in the newspapers and magazines and on the radio on health, it behooves the population to be a little critical and have some basic knowledge for evaluation.

I think his paper was well taken; I think it is very illuminating.

Table 3 has certainly placed in my mind very clearly our whole subject of hygiene, biology and physiology in our high school teaching system. I certainly hope the paper will get wide recognition. I think this subject should be directed more towards the education of the general public. It really should go to the school boards and those who are determining our educational system.

Dr. R. C. Cook, Springfield: I appreciate very much hearing this paper by Doctor Beard. It is a recognized fact that health teaching is not given the importance in the high school curriculum that it deserves.

In regard to the plan for health teaching, authorities are not altogether agreed. An article by D. C. Mitchell in October, 1934, issue of the *Research Quarterly* of the American Physical Education Association indicates that state officers and health experts (the theory group) prefer that a separate health course with four or five class periods a week for at least one year be a required course while with the practice group (active school people) there is apparently a preference for integration of the health course with the work in science, physical education, home economics, etc.

An increasing number of schools are making more use of the general science textbooks in the grades beginning with Grade 5, through Grades 6, 7 and 8.

There is very little health being taught as such to the high school pupils in Illinois because it is not compulsory. I believe there are about four states in the Union that do require one or two years of health subjects in the curriculum and give credit for some. But this is not true in Illinois, and only a very few schools give anything like an adequate course.

Another statement by Doctor Beard is, "How successfully this subject will be taugh depends upon the teacher's interest in the subject." If we go to a school

of eight or ten teachers, there may be one teacher who is quite thoroughly interested in the subject of health and will teach it in a practical way. But the chances are that a majority of teachers will be more interested in any other subject than individual and community health. We realize quite well the inadequacy with which health is taught to the pupils in a majority of high schools, but there is quite an interest on the part of the school principal in many communities to develop a school health program that will have the rating of a major subject in their curriculum. During the past year or two several school principals have undertaken to write up a health program outline and that is one thing we are particularly urging them to do, to think enough of their health program and what they are teaching to put it into print.

Dr. Elizabeth B. Ball, Springfield: I would like to add another piece of encouraging news. At the regional conference of the Progressive Education Association held in Chicago in March this year three papers on health education in high schools were presented. The University of Wisconsin High School has an excellent program and I should be pleased to send Dr. Beard a copy of this paper, should he wish to have it.

This program has been in effect long enough to produce results. The students budget their time, have physical defects corrected, make good adjustments in the social world, etc.

The paper read by Dr. Beard makes us realize the inadequacy of the health work in our high schools.

Mr. B. K. Richardson, Springfield: I would like principally to pay my compliments to Dr. Beard. I think that was one of the best papers I ever heard on that subject and certainly his data are illuminating. To those of us who have spent a good deal of time in public health work, and particularly in the educational field, it was not entirely unsuspected that this sort of educational program prevails because we recognize the general lack of information on the subject. There is one encouraging thing, I think, about the health educational picture, however. It is shown by the experience of the State Health Department through the operation of a motion picture library for a good many years now. About three years ago, I think, the Department got from the Eastman people several pictures that are particularly suitable for instruction of high school pupils. They were made under the direction of some faculty members of the Massachusetts Institute of Technology who specialize in health, and we lend those pictures. During the school season just closing now we have been entirely unable to satisfy the demands. We had four projectors that we lent along with about thirty titles of films, with multiple copies of several and all of the equipment has been reserved mostly by high school teachers for from four to six weeks in advance. We could have kept in circulation twice as many films as we have had. But it indicates to me that the interest in this subject is growing rather rapidly among teachers, which gives promise and the hope that some corrections may be made in the not far distant future in this field.

STUMBLING-BLOCKS IN INFANT CARE

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Between the simple routine problems of infant care and the major catastrophes of infancy, there exist certain disorders, which, while not necessarily serious in themselves, frequently prove to be real pitfalls in the art of pediatric practice. The various disturbances I have in mind are a source of worry, and often of dissatisfaction, to the parents,—a real barrier to successful infant supervision. Moreover, since these abnormalities are frequently troublesome for the pediatrician, it may be assumed that they are equally confusing to the doctor who does not limit his work to pediatrics. To attempt an inclusive list of problems of the nature would be pretentious regardless of the scope of this paper. The following topics, therefore, are selective on the basis of frequency and importance from a personal viewpoint.

One disturbance of this type occurs in earliest infancy. Not infrequently one encounters babies who from birth or shortly thereafter suffer from noisy breathing. Their respirations are rattly or wheezy, either continuously, or more commonly, intermittently. The breathing however is not actually obstructive, and cyanosis is absent. Eventually this type of disturbed breathing disappears spontaneously. In other respects the baby progresses normally, to the satisfaction of the doctor perhaps, but not to the parents. This syndrome, best referred to undoubtedly as congenital laryngeal stridor, must comprise one of the larger groups of so-called "enlarged thymus cases." Curiously enough, most x-ray men I have encountered are quite confident that they can and do relieve the stridulous breathing of these babies, although experience shows that the majority continue their course uninfluenced by irradiation. Congenital stridor, as a subgroup of the respiratory disturbances of infancy, is possibly itself merely a loose grouping of cases of varied etiology, for it is interesting to find that rather frequently some of these babies later develop eczema, or show definite food sensitivities. Moreover since there is a recognized association between infantile eczema and an enlarged thymic shadow, it is not surprising that an early, appa-

Read before Joint Session, May 23, 1935, at Annual Meeting of Illinois State Medical Society, Rockford.

rently confirmatory, radiogram is obtained in these so-called thymic cases. Withal irradiation is apparently harmless and quite consoling to the parents, so for the present we may be satisfied with our therapy, if not with its results. Meanwhile the parents may be safely assured that the infant will thrive and progress normally with an eventual disappearance of his troubles.

There is another bad actor among babies, more common than the so-called thymus case. This type of baby never seems to relax, and, what is worse, allows the parents little rest. By day and night they are wakeful, fretful or crying, and apparently colicky. Regardless of how well feedings are taken they frequently retain them poorly. Regurgitation or partial vomiting may occur chronically. Their restlessness and tension is entirely out of proportion to their external stimulation, and the term "hypertonic" seems to characterize them very well. Truly nothing seems to satisfy some of them, for variations in the type or strength of feedings, or in the relative fat or carbohydrate content, make little difference in their behavior or retention of food. Interestingly enough, in spite of their apparent lack of rest, their fussing, crying, and regurgitation, they often continue to grow at quite a normal rate, providing feedings are adequate. Occasionally, in fact, they gain at a much greater rate than the average. While Vitamin B therapy has been highly recommended for this type of baby, I have found its results generally disappointing. Symptomatically sedation and adequate caloric feedings seem to give the best results. Among the causes of this disturbance there may well be constitutional factors, for often the baby mirrors traits quite evident in the nervous, high strung parent. Here again, as in some of the babies with respiratory disturbances, later signs of allergy may develop, suggesting a latent source of trouble present from the time of birth. As in the first group, time mollifies the symptoms, and here too the anxious parents can be confidently promised a more normal infant at a later age.

The behavior of these so-called "hypertonic" babies introduces another problem in infant management—the question of underfeeding. It does not seem illogical, in the presence of the apparent colic and persistent regurgitation of the hypertonic baby, to dilute the prescribed formula because of the suggested indigestion. Actually, as mentioned above, this particular type of baby does better on a relatively rich feeding. With dilute formulas and an increase quantitative intake resulting from hunger, vomiting of this type becomes worse. This same inability to retain total volume desired is occasionally seen in otherwise normal infants on very dilute formulas. Too frequently also, progressive dilution of formulas may be practiced for misinterpreted symptoms other than vomiting. Fussiness or loud crying, early or late, after breast or bottle by no means implies indigestion, or improper feedings. The presumption should be hunger, and improvement should not be sought primarily in dilution or variation of the formula. While an occasional baby with low fat or carbohydrate tolerance is seen, the older conception of fat, carbohydrate, or protein indigestions per se is rarely encountered. Such ideas, however, have contributed to a great deal of formula tinkering which reaches its worst stages where the feedings are altered every few days without giving the infant a real chance to prove his response to the current formula. With dilute feedings and rapid changes of formulas uniform stools cannot be expected, but the resultant green or variable stools may be misinterpreted as additional signs of indigestion. In addition to misjudgment of infant behavior, there is another important factor that has contributed largely to the practice of underfeeding. I refer to the questionable belief, which is widely prevalent, that the average gain in early infancy of 4 to 6 ounces weekly is normal or satisfactory for all babies. Many babies will be strikingly hungry, and therefore presumptively underfed, on formulas permitting such a gain. With more liberal feedings on the other hand, gains of a pound a week in perfectly contented babies are not uncommon in early infancy. While such gains are not maintained regularly, these babies often double their birth weight before the third month rather than the frequently quoted 5th to 6th month. The question of overfeeding which might be raised here should be sufficiently answered by the perfectly normal development of these infants, and, what is more significant, by the comparable growth of some breast-fed infants. The present day science of nutrition has not yet answered all of the practical problems of infant dietetics. An excellent example of this is found in a proprietary infant food scientifically con-

structed to duplicate breast milk as closely as possible in a chemical and physical fashion. In spite of its theoretical advantages I have yet to encounter a baby who has been satisfied on this particular feeding, or who has apparently developed as well as might be expected from the nutritional standpoint. Conversely, I do not think there is any doubt but what the success and popularity following the use of lactic acid feedings has been based more on the practical results of a confidently prescribed, rich caloric feeding rather than on the theoretical advantages of this particular mixture.

The underfed baby has his counterpart in another infant behavior problem—the child with anorexia. A scanty appetite may mean many things to the physician; to the parents it is a disease in itself, and one of no little consequence. As doctors, we will be reassuring to the parents to the degree that we appreciate the normal variations of appetite in infancy, which after all are probably not greatly different from the fluctuations at other ages. The occasional baby who thrives on quite a low caloric intake amends for his dainty eating, as far as the parents are concerned, by his satisfactory gain and growth. It is worth noting in passing, however, that the mentally retarded child is not uncommonly a very difficult one to feed and obtain satisfactory development. The anorexia that distresses parents, though, usually occurs in perfectly normal babies. Characteristically this anorexia is never a constant symptom. As a matter of fact the normality of these variations is established by the transient, relative, or variable nature of the anorexia. An example of this misinterpreted, so-called, anorexia is encountered not infrequently during the last half of the first year. A healthy infant who hitherto has been regularly hungry at feeding time rather gradually, or perhaps abruptly, slumps in his quantitative diet to a striking degree. This period of noticeably lessened intake may persist for several days, or even weeks. In spite of the parents' suffering the baby usually appears happy and contented, fever or signs of infection are absent, and in all other respects he behaves quite normally. Possibly this variation is an adjustment to the slower rate of growth during the second six months. Teeth are also erupting at this age and in some babies the coincidence of the lowered appetite and swollen gums is striking. While many babies cut their teeth with no evident disturbance, careful observation will show the most varied and bizarre symptoms occurring in some infants during the stage of tooth eruption. A more common age period for the appearance of these so-called anorexias is the second year of life. Here there can be no doubt but that the decreased appetite and lessened intake is in keeping with the slower rate of growth. The parents, nevertheless, are greatly concerned when they see the hub of the household eating less at 18 months than he did at 8 months. The particular foodstuff rejected varies. It may be chiefly milk, or perhaps the cooked cereals, or vegetables. Inquiry as a rule reveals that the baby is taking some food with relish, possibly starches as toast and potatoes, and proteins as meat or eggs. Not uncommonly the mother may be voluntarily restricting the desired quantity of meat for lurking fears or possible kindney damage. Experience has uniformly shown that at this age nothing is more important for the child's eating habits and appetite than studied indifference as to the total quantity or exact variety of food taken. Provided that a certain variety of natural foods are offered at regular intervals, only good results may be confidently expected if the infant is granted the privilege of starting to lead his own life. Frequently at this age, however, three outstanding faulty practices are mistakenly initiated. First, intermediate feedings are started to bridge the supposedly serious gap between light meals; second, sweetened, flavored carbohydrate foods are given because they are taken more readily, and third, meals are forced, bribed, or cajoled into the unwilling child. All three practices merely pervert the natural appetite, intensify the apparent anorexia, and may, therefore, eventually seriously interfere with the child's nutrition. Back of the parent's anxieties and this unnatural feeding are at least three current shibboleths of nutrition—calories, vitamines, and minerals. The widespread publicity along dietary lines in infant welfare has merely served to divorce practice from theory as far as infant nutrition is concerned. As a matter of fact, it is quite impossible for the physician himself, even under ideal conditions, to keep any baby's diet constantly balanced against known theoretical requirements. With rational guidance of diet and eating habits, how-

ever, the dietary requirements of the infant may be adequately balanced over longer periods of time. The scientific proof for such a statement may be found in the careful, extended, studies of Dr. Clara Davis in her experimental work on self selection of diets in infants and children. Briefly, she allows children to choose their own variety and quantity of natural foodstuffs in a perfectly neutral atmosphere as far as the child's behavior is concerned. Her principles of feeding by reason rather than by rule are applicable in actual practice with intelligent, cooperative parents, economically able to provide for their children. Over a period of several years I have followed numerous children fed according to Dr. Davis' principles of self selection. The temporary vagaries and transient variations in food intake in these children in their homes duplicate the experiences of Dr. Davis under controlled conditions. All of the children have developed normally and are of exceptionally good nutritional status. Moreover none have ever shown any real or prolonged poor appetite, and feeding has never been a problem. This volitional method of feeding is apparently both sound and practical to the extent that the cooperation of the parents may be obtained.

Any discussion of the problems of infant care can scarcely avoid the question of infections. Infants, like the rest of mankind, are victimized chiefly by the varied and repeated respiratory infections. However, I think it is interesting to notice that the so-called common cold is quite unusual during the first year of life. The alleged colds of infants, marked by nasal discharge, sneezing, or coughing, have in my experience usually been associated with pale puffy mucous membranes more suggestive of allergic reactions than of primary infectious changes. That allergic phenomena must not be overlooked merely because of the tender age, is shown by the typical attacks of asthma which may be encountered even within the first few weeks of life. The triad of respiratory complications which ferquently cause the most severe illnesses in infancy—otitis media, pyelitis, and pneumonia—have been stressed many times before, and I merely mention them as diagnostic problems quickly disposed of by the otoscope and indicated laboratory examinations. Likewise the common contagious diseases are rarely diagnostic problems in infancy, since exposure is ordinarily familiar. One disease, however, deserves special comment. I refer to the condition variously called roseola infantum, erythema infectiosum, exanthem subitum, critical preeruptive fever, and Duke's 4th disease. Although its existence has been questioned by some, observation will show that, clinically, it is apparently the most consistent of all the acute infectious diseases of infancy. Starting acutely with fever, malaise, anorexia, irritability or drowsiness, the illness runs with monotonous uniformity for a period of about 4 days. During this time the temperature and degree of malaise fluctuate. Characteristically and pathognomonically, physical examinations during this time reveal perfectly normal findings. Terminally, the second typical feature of the disease appears—a fine rash of variable intensity, frequently not unlike the eruption of German measles. With the appearance of the rash the fever breaks by crisis, and symptomatic recovery is complete although the rash may persist for 24 to 48 hours. Complications do not occur. The only condition which might simulate this illness is the subacute type of upper respiratory infection featured by fever and generalized symptoms out of proportion to the visible changes in the nose and throat. Roseola infantum is probably quite common in infancy. In obtaining histories of infantile upsets, it is probably spoken of as multiple attacks of measles, or so-called teething or feeding rashes of transient duration. Careful questioning of the mother will often elicit the story of a protracted, solitary, fever terminated by a rash. In the presence of the illness, the rather prolonged febrile course with no evident cause is frequently alarming to attentive parents who may easily feel that all is not going well. If roseola infantum is remembered it will be recognized, and if anticipated the parents may frequently be reassured in the midst of this harmless infantile upset.

In conclusion, as exemplified by roseola infantum, it might be said that the troublesome problems of infant management often do not involve serious or spectacular diseases. On the contrary many of these perplexing problems concern self-limited or benign conditions. For the reassurance of the parents, nevertheless, and for rational treatment, it is important that these conditions be recognized. This implies chiefly a proper interpretation of infant behavior. Some

typical problems of this nature have been presented. To epitomize:

1. Beware of the diagnosis "thymic case."
2. Remember the non-conformist "hypertonic."
3. Appreciate the signs of hunger and underfeeding.
4. Use common sense as well as current science in infant dietetics.
5. Include roseola infantum in the acute infectious diseases of infancy.

GASTRIC SECRETION IN BILIARY TRACT DISEASE

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In 1893, Leva[1] first pointed out that the secretion of the stomach is changed in diseases of the liver and gall bladder. Later (1900) Pawlov,[2] Bickel,[3] Cohnheim,[4] and Sato,[5] have shown that the contents of the duodenum influence the amount of secretion of gastric juice. Clinically it has been known for a long time that patients suffering from gall bladder disease complained also of gastric symptoms. These latter were interpreted as due to the changes in the bile which by producing alterations in the duodenal contents give rise to disturbances of the gastric secretion.

The problem of gastric secretion in cases of cholecystitis and cholelithiasis has been controverted for a long time. Some authors (Hohlweg)[6] are of the opinion that a deviation from the normal of the gastric secretion without any actual stomach findings is due to the disturbances in the biliary system. Others, like (Aldor)[7] believe that the secretory deficiency of the stomach is primary and the cholecystopathy secondary. A number of years ago Aldor stressed the importance of decreased gastric secretion in the etiology of the gall bladder disease by calling attention to the fact that the anacidity or subacidity may lead to a possible infection of the biliary system. Aldor also observed in more than half of his gall bladder patients a marked increase in the gastrogenic mucus similar to the increase of mucus in chronic gastritis. He, therefore, opined that the dyspeptic symptoms and the lowered acidity may be the simultaneous expression of both a primary gastritis and a secondary cholecystitis or cholelithiasis.

Much clinical and experimental investigation has been done in this field, but the opinions concerning gastric secretion in gall bladder disease are still quite divergent. Thus, Hohlweg (1912) examined forty-two cholecystectomized patients and found in 69% anacidity, in 14.3% subacidity and only in 16% normal value. Through clinical observations and experiments on animals, Hohlweg found a decrease or nearly complete loss of gastric secretion following the loss of the gall bladder function, as caused by occlusion of the cystic duct or shrinking of the gall bladder. Aldor[7] found 42.6% anacidity and subacidity among his material of gall bladder pathology. Rydgaard[8] in collecting 471 cases from the literature, noted that 52% of them had a hypoacidity. In Rovsing's[9] clinic, out of 158 cases of cholecystitis 47.4% showed lowered acid values. Gatewood[10] found 45%; Dittmann,[11] 50%; Ohly,[12] 47%; and Boss,[13] 56% anacidity and subacidity in patients with gall bladder disease. Higher percentages of decreased gastric acidity in their gall bladder material are reported by Loess[14] (64%), Moewes[15] (67%), Miyake[16] (69%), Landgraf[17] (67.5%), Gulecke[18] (70%), Dangschat[19] (73%), Rohde[20] (74%), Akaiwa and Sugano[21] (77%), Behm[22] (85%), Schneider[23] (85%), and Cohn[24] (87%). Following cholecystectomy changes in the gastric secretion were in general not significant. Only Dangschat,[19] Behm[22] and Rohde[20] report an increase in the preoperative percentages of subacidity of 3.2%, 14%, and 15% respectively.

On the other hand a number of authors not only deny the co-existence of lowered acid values with gall bladder disease, but claim that hyperacidity is frequent in these cases. Magnus,[25] Miyake,[16] and Boss,[13] maintain that there is no connection between subnormal gastric acidity on the one hand and gall bladder disease on the other hand, though Boss,[13] and Miyake,[16] found decreased acid values in more than half of their patients with gall bladder disturbances. Lantodub[26] reports that in his material, diseases of the gall bladder were associated more often with normal acidity or hyperacidity. He believes that the decrease in acidity is not the infallible result

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of the cholecystopathy, but that it may be due to some associated or co-existent affection of the gastrointestinal tract or of any other part of the organism. Koch[27] reports 61.9%, and Emura[28] 45.9% of hyperacidity among his series of gall bladder cases. Hyperacidity was also observed by Kern,[29] Grube,[30] and Kraft.[31] Simnitzky,[32] in contrast to Hohlweg[6] found that complete cessation of the bile flow was associated with an increase in the acid values of the gastric secretion. Lehmann[33] reports hyperacidity in cases of cholecystitis of short duration, while subacidity or anacidity was present in chronic cases. This finding is in agreement with that of Lueders and Scherer.[34].

On the basis of the above quoted material it is pertinent to state that the relation existing between gall bladder disease and stomach secretion is not an unimportant one. In fact, the physiological relations between the gall bladder (biliary system) and the stomach are probably multiple and of practical nature. That these relationships, although known, are not fully evaluated is due to the variable interpretation given by the different authors to the experimental results and clinical observations. With this in mind, it was deemed appropriate to study the gastric secretion in a number of cases with disturbances in their biliary system, and to determine which one of the above quoted theories would be applicable to our group.

The investigation was done on a group of eighty patients with gall bladder disease, who had entered the Medical Department of the Cook County Hospital in the first half of 1933. The patients included in this group were considered positive cases of gall bladder disease because of 1. history of dyspeptic disturbances with or without colics; 2. findings of tenderness in the right upper quadrant; and 3. roentgenographic findings of either (a) non-visualization of the gall bladder, (b) non-emptying of a well filled gall bladder; or (c) stones in the gall bladder, after the oral administration of tetraiodophenolphtalein (Gall bladder dye). Doubtful cases were not included. In thirty patients the diagnosis was checked by an operation. Of the eighty patients, sixty-four were women and sixteen were men. In five cases there was an associated pathologic condition. One case had a previous gastroenterostomy for a duodenal obstruction, one coronary disease (checked by an electrocardiogram), one an enlarged right kidney, one a stone in the right kidney, and the last one a cirrhosis of the liver

The examinations of the gastric contents were done as follows: The patient received the usual Ewald meal in the morning. One hour later the stomach was aspirated and the contents were tested for free acid with Topfer's solution (0.5% alcoholic solution of dimethylaminoazobenzol), and for total acidity with a one per cent. alcoholic solution of phenolphtalein. A free acid of twenty to forty degrees and a total of forty to sixty was considered as normal secretion); above forty degrees free acid as hyperacidity; below twenty degrees of free acid as subacidity; and without free acid as anacidity. In most of the latter cases a fractional test was done using a seven per cent. alcohol solution and 1:1000 histamin solution as the test meal. The technique used was as follows: A Rehfuss tube was introduced into the fasting patient's stomach, and the contents were aspirated and tested for free and total acid. With the Rehfuss tube in place, 240 cubic centimeter of a 7% alcohol solution were given the patient orally. Fifteen minutes later, the stomach contents were aspirated and were tested for free and total acid. Then ½ c.c. of a 1:1000 solution of ergamin acid phosphate (histamin) was injected subcutaneously and the stomach was aspirated every fifteen minutes for one hour. Each aspirated specimen was tested for the degree of acidity and the highest reading obtained was taken as the final degree of free and total acid.

Result. Of the eighty patients examined, thirty or 37.5% showed normal acidity; five or 6.2% hyperacidity; thirty-one or 38.7% subacidity; and fourteen or 17.5% anacidity. This makes a total of 56.2% of hypacidity. Of the fourteen cases with anacidity, ten were given an alcohol histamin fractional test. Of these so tested patients, six showed free acid on histamin but not on alcohol, while four patients did not show any free acid on either test. Among these latter four cases, one was found at operation to have a cirrhosis of the liver. A constant finding in the cases with anacidity was the large amount of gastrogenous mucus in the aspirated stomach contents. The mucus was so profuse and tenacious that the filtration of the aspirated specimens was very slow and tedious, often taking four to

six times the length of time required by normal gastric contents.

Curiously enough, but coinciding with the findings of other workers (Aldor, etc.), the age of the patient or the duration of the symptoms did not seem to have any relation to the gastric acid values. The age incidence of the patients with normal acid values was nineteen to sixty years, with an average of forty-three years. The ages of the subacidity group and of the anacidity group were from twenty-one to sixty and twenty-eight to sixty-one respectively with an average of forty-three years in both groups. The ages in the hyperacidity group varied from thirty-three to seventy-two years with an average of fifty years. The duration of the symptoms referable to gall bladder disease was on the average two and three years respectively in the group with subacidity, anacidity, and one and a half and three years in the hyperacidity and normal groups respectively. (Table 1.)

Comment. It was not within the scope of this study to prove or disprove whether the decreased gastric acid value is primary and the cholecystopathy secondary as Aldor and others claim, or whether disturbances in the gall bladder lead to a decrease of gastric secretion as Hohlweg believes, but only to find whether there is a decrease of the level of the gastric acidity in patients with gall bladder disease. The finding of a lowered gastric acidity in 56% of our cases is in agreement with the results obtained by the majority of the workers and seems to support the theory that there is a decreased acid secretion in patients with gall bladder disease as compared to normal individuals. Our results, furthermore, seem to corroborate Aldor's theories that there is an associated chronic gastritis in cases of cholecystitis or cholelithiasis or both. These conclusions appear justified in view of the high percentage of cases with decreased gastric acidity and in view of the marked increase in gastrogenous mucus. Then too, the fact that of ten patients with anacidity four did not show any free acid even on the histamin fractional test, speaks for an involvement of the gastric mucosa proper.

Contrary to Rydgaard, Dangschat and Rohde's findings, the occurrence of stones in the gall bladder, cystic or common duct, did not seem to influence the acid values in this group. In the twenty patients in which gallstones were found at operation, there was an about proportional incidence of hypacidity on the one hand and normal acidity on the other hand (Table 2). The acid values in three patients in which a stone was found in the cystic duct were 59°, 8°, and 10° respectively, while one patient with a stone in the common duct had a free acid of thirty-four degrees. Rydgaard's observation that icterus is no criterion of the level of gastric acidity was noted in this series, too, with jaundice occurring in only twelve patients and being distributed in the various acid value groups. Hine's[35] theory that achlorhydria interferes with cholecystography which was refuted by Dewey,[36] Lockwood[37] and others could not be proved or disproved in this series, since of fifteen patients with a non-visualization of the gall-bladder and anacidity only four were operated on, but in these four there was an actual pathologic process in the gall-bladder sufficient to cause a non-visualization. In general there was a close agreement between the clinical and roentgenologic findings, except in regard to cholelithiasis which was diagnosed roentgenologically twice but found in twenty cases at operation. (Table 3.)

SUMMARY

1. Decreased gastric acidity was found in 56.4% of patients with gall bladder disease observed in this series. The diagnosis of cholecystopathy was made by history, physical findings, cholecystography (oral dye administration), and in thirty cases confirmed by operation.

2. The duration of symptoms, the age of the patients, the occurrence of stones in the gall-bladder, cystic or common duct, and the presence of jaundice appeared to be without influence upon the degree of acid values of the gastric secretion.

3. A chronic gastritis seems to be present in the cases with marked subacidity and in those with anacidity as evident by the increase of gastrogenous mucus.

4. Ten out of fourteen cases with anacidity had alcohol-histamin fractional test and of these only six showed free acid.

5. The finding of hypacidity in a patient with upper abdominal symptoms and without any findings in the stomach should be highly suggestive of gall bladder disease.

I wish to express my sincerest gratitude and deepest appreciation to Drs. L. C. Gatewood and

Frederick Tice for their suggestions and valuable assistance in the preparation of this paper.

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Gast. Secr.	Age of Patient: Oldest Pat.	Youngest Pat.	Aver. Age	Duration of Symptoms: Longest Durat. Yrs.	Shortest Durat. Mos.	Aver. Durat. Yrs.
Hyperacidity	72	33	50	3	4	1½
Norm. Acidity ..	60	19	43	16	3	3
Subacidity	60	21	43	8	3	3
Anacidity	61	28	43	10	6	3

1. Table showing relation of age and duration of symptoms to degree of gastric acidity.

Type of Gastric Acidity	Number of Cases: Diagnosis Clinically and Operatively: with stones	without stones	Total	Diagnosis Clinically and not operatively: with stone	Non-Viz.	Visual. not empty	Total	Total of Series
Hyperacid. ..	2	0	2	0	3	0	3	5
Norm. Acid .	7	2	9	0	21	0	21	30
Subacid.	9	6	15	0	15	1	16	31
Anacid.	2	2	4	0	10	0	10	14

2. Table showing number of cases operated and non-operated in the various acid groups.

Diagnosis made	Number of Cases: Cholecystitis and Cholelithiasis	Cholecystitis and Cholesterosis	Miscellaneous: Perfor of G. B.	Quest. Path.	Total No.
Clinically and on X-ray	28	2	0	0	0	30
Found Surgically.	6	20	2	1	1	30

3. Table showing agreement of clinical and surgical diagnosis.

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VETERANS' MEDICAL LEGISLATION AS IT AFFECTS THE MEDICAL PROFESSION

E. H. Cary, M. D.

Past President of the American Medical Association, Chairman of Committee on Veterans' Affairs.

DALLAS, TEXAS

Mr. Chairman, Ladies and Gentlemen: The thought has been running through my mind as to what in all probability would appeal to the doctors who have done their duty, who have been in the service of their country, those of you who have not only done that but who were sufficiently trained to become doctors before you had an opportunity to do something for your country, and were imbued with all the traditions of

Extemporaneous Remarks presented at Veterans' Service Committee Dinner, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 21, 1935.

your profession. I realize as you do that you are after all, first a doctor, that you recognize the importance of the profession and the value of that unity which exists within the medical profession, which sustains its ideals and will protect it from the future trouble which may come.

I recall just a few years ago when many demands were being made upon the country to take care of that group of disabled soldiers, everyone, including all the doctors, cooperated in seeing that every disabled soldier of the United States was promptly and properly cared for, not only with hospitalization but with compensation. It was soon found by the doctors who had gone back into their respective districts to practice medicine, that legislation for disabled soldiers meant increased hospitalization; that increased hospitalization pretty soon meant a hospital growth in this country far beyond the needs or demands of those who were disabled in the War. The medical profession watching that, became somewhat solicitous of the future. We were not unaware of the history of medicine as it is practiced in all the countries of the world. We were aware of the complications that follow in the wake of too much governmental interference. Following that thought, it was not difficult for the medical profession to become somewhat aroused as to the tendencies or outlook of the future; what would happen if every congressman in this country would try to have a hospital as large, as beautiful, as expensive, as the congressman in some other district. It looked for a time as if this might be true. Of course, the medical profession had a word to say about it, and the American Legion had a word to say about it. Before a great while the medical profession was being misunderstood by the American Legion and correspondingly, the Legion was misunderstood by the profession. Not very long ago, in 1931, some of the wisest men in the Legion saw that they had to seek some cooperation or consultation which might lead to an understanding. In Washington, in 1931, a committee, with representatives from the American Medical Association and the American Legion got together and tried to find out what they were driving at and where it would lead.

In a very short time, it was concluded that there was first, an acute genuine need, a growing need in all probability as far as the government was concerned, to take care of those soldiers who had or who might develop tuberculosis. It was discovered in this conference that there would be, soon, a need for hospitalization for nervous and mental cases. It was readily agreed that we as medical men could support the efforts of the Legion to take care of these soldiers who were not normal mentally and who could not care for themselves, and those veterans who as time went on, could not be cared for by their families and could be better cared for by the American government. In having come to a fine spirit of understanding and cooperation by this conference, we were able to take the next step.

Later, we were invited to attend the American Legion meeting at Portland. There I had the honor, as President-elect of the American Medical Association, and as a member of the Veterans' Service Committee, to meet the men of the Legion and General Hines, and to have conferences which finally brought about a better understanding between the Medical Profession and the American Legion. As time has passed we have been able to have these various conferences and meetings, and we have come to know just how far the Legionnaires of the country desire to go in the matter of hospitalization, and just how medicine will be affected by it.

Hospitalization has not been the only question, of course. There have been many other points involved, particularly the question which Doctor Mosley discussed a moment ago, as to how much the Legionnaire who was not in need would use the privilege, which is his, of going to a distant point for hospitalization instead of remaining in his own community and letting his own doctor care for him. I recall when Doctor Woodward and I had met with the Committee representing both Houses of Congress and had the opportunity of speaking concerning the beds in the ordinary hospitals of this country. At that time something like 200,000 beds were vacant. It was quite evident that this particular factor had never appealed to the Congressmen. It has never been hard to find from those who lead the American Legion some basis of understanding, where they are willing to protect the medical profession and to take care

of the various details which I have already mentioned. So you see we have gone a long way to try and reach a basis by which the medical profession could be cared for and protected, and by which the future of medicine in this country would be protected and by which the country would not be over hospitalized.

We became deeply interested in a conference which took place in Chicago, wherein was discussed the four points which were brought out by the distinguished gentleman of Illinois, the Commander of the American Legion, as his program. We were greatly interested in one feature of that program. We were wondering just how this non-service connected disability clause would be received. We found that the Legionnaires were not interested in free hospitalization for men who could pay, and that they were perfectly willing to have enforced the oath which applicants for hospitalization must sign, and which carries a $5,000 fine and jail sentence for false statement. What has happened? Today there are 3,000 beds vacant in sanatoriums used for tuberculosis. There are 6,000 beds empty in general medical hospitals. We have had an economic breakdown and a terrible depression, so we would have expected more men to use government hospitals, leaving their country doctors; and they would, had it not been for the restraining oath. The result is that hospitalization benefits are not being abused today. We realize that there is no need for new hospitals, because we know throughout the country there are something like 200,000 vacant beds in voluntary hospitals.

We have reached a point of understanding with the American Legion where we gladly concede the right of the government to make provisions for all nervous and mental cases. This is all right. When a flood of hospital bills went into Congress recently, I took a committee down there. We found the rights which we had established through understanding and friendship were holding, that there was no effort being made to force construction of new hospitals. Seemingly, any new additions will be along logical lines, which will not affect the medical profession adversely. So, gentlemen, I think we have been able to bring about a happy situation for the men here and there who have given unstinted service when their country was in need, and who could not have served their country so well if they had not had medical training. If you men had not been there to support the soldiers, to care for the sick and wounded, and to bring them to a stage of convalescence where they could be brought home, certainly the veterans would not have fared so well. The medical profession did its duty as it always has done, without thought of reward. The medical profession, through its cooperation with the Legion and through such men as Doctor Fredrickson and Doctor Williamson in this state, has been able to gain an understanding which will enable us to keep from this country that type of practice which will destroy the private practice of medicine, and which will enable the profession to do more than stand still; and keep it from distintegrating into forms of practice which have been used in other countries, but that is another story. I would like to tell you something of what is being accomplished along that line. I would like to tell you something of the future prospects of medicine. All I will say is that if medical men will stand together in the next two years, as they have previously, I believe the proposed policy of governmental practice of medicine will be put aside. It is for us to stand pat, to stand unified.

ILLINOIS HOSPITALS

(Continued from Page 116)

Fisher Hospital	Gen	Indiv	9	2	No data supplied		
Minonk, 1,910—Woodford							
Woodford County Tuberculosis Sanatorium	TB	County	11	..	..	..	7
Mooseheart, 1,519—Kane							
Mooseheart Hospital	Chl	Frat	80	..	..	51	2,079
Mt. Prospect, 1,225—Cook							
Mt. Prospect General Hospital	Gen	Corp	20	4	10	1	100
Normal, 6,768—McLean							
Soldiers' and Sailors' Children's School	Inst	State	25	..	..	15	2,000
Paxton, 2,892—Ford							
Paxton Community Hospital	Gen	NPAssn	16	4	23	6	224
Peoria, 104,969—Peoria							
Peoria Isolation Hospital.....	Iso	City	50	..	..	..	5
Pontiac, 8,272—Livingston							
Illinois State Reformatory Hospital	Inst	State	38	..	..	22	694
Quincy, 39,241—Adams							
Illinois Soldiers' and Sailors' Home and Hospital.....	Inst	State	248	..	..	121	870
St. Charles, 5,377—Kane							
St. Charles School for Boys	Inst	State	30	..	..	19	640
Savanna, 5,086—Carroll							
Station Hospital	Gen	Army	10	..	..	3	120
Sullivan, 2,339—Moultrie							
Illinois Masonic Home.....	Inst	Frat	41	..	..	85	40
Urbana, 13,060—Champaign							
McKinley University Hospital	Inst	State	85	..	..	28	1,410
Wedron, 202—La Salle							
St. Joseph's Health Resort.	Conv	Church	60	..	..	30	570
West Chicago, 3,477—Du Page							
Country Home for Convalescent Crippled Children...	Orth	NPAssn	120	..	..	97	214
Wheaton, 7,258—Du Page							
Howe Home	N&M	Part	15	..	..	8	1
Mary E. Pogue Sanitarium.	N&M	Indiv	40	..	..	..	..
Wheaton Health Resort...	Gen	Part	30	12	14	7	49
Wheeling, 467—Cook							
Wheeling Hospital	Gen	Indiv	9	5	12	2	140
White Hall, 2,928—Greene							
White Hall Hospital.....	Gen	Indiv.	6	5	81	6	289

Winnetka, 12,166—Cook
North Shore Health Resort.. Conv Corp 75 .. .. 50 ..

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	264	59,770	47,055	486,107
Related institutions	56	10,156	8,633	20,285
Totals	320	69,926	55,688	506,392
Refused registration	41	1,391		

PARATHYROID HORMONE THERAPY

Joseph C. Aub, Boston (*Journal A. M. A.*, July 20, 1935), states that the chief therapeutic value of parathyroid extract is dependent on its influence on the blood levels of calcium and phosphorus. Its major use, therefore, lies in the treatment of acute low calcium tetany. In this condition it may be a life saving measure. Parathyroid extract may also be chosen for other therapeutic purposes. In these less urgent conditions, its beneficial effect arises from the liberation and the increased excretion of salts derived from bone.

AIR IN BILE PASSAGES

According to Samuel Candel and William L. Wolfson, Brooklyn (*Journal* A. M. A., July 20, 1935), biliary fistula into the intestinal canal usually results from the combination of infection and calculi in the biliary passages. Seldom does it develop from a perforating duodenal ulcer. When suppuration of the biliary tracts occur, adhesions form, and the gallbladder or its ducts may become agglutinated to proximate organs; i. e., duodenum, colon, stomach. As a consequence of constant pressure of calculi and advancing necrosis of the wall of the gallbladder, perforation into an adherent viscus may ensue. Internal biliary fistulas have frequently been associated with the presence of stones. The impaction of a stone in the duodenum or small intestine, complicating the perforation of the gallbladder into the digestive tract, may result in intestinal obstruction. Stones that have perforated into the large bowel rarely produce obstruction unless the stone is enormous or unless conglomerated calculi have formed a large mass. The authors report a case of spontaneous cholecystocolonic fistula in which the colon, the fistula, the small gallbladder, the cystic duct, the dilated common duct and the hepatic ducts were air filled and clearly visualized. Roentgenographic studies demonstrated gas and barium shadows in the biliary passage. Persistent cramps and diarrhea were outstanding and significant symptoms. The diagnosis was made preoperatively and confirmed by operation.

HAZARDS OF INDUCTION OF PNEUMOTHORAX in TREATMENT OF LOBAR PNEUMONIA

Jesse G. M. Bullowa and Edgar Mayer, New York (*Journal A. M. A.*, July 20, 1935), believe that there is insufficient evidence to warrant the use of artificial pneumothorax in the treatment of lobar pneumonia except in large hospitals amply equipped for bacteriologic, serologic and roentgenographic studies. Pneumothorax therapy should not be employed by those inexperienced in the treatment of pneumonia or in the use of artificial pneumothorax. The favorable results thus far recorded deal almost entirely with patients in the early stages of the disease and without bacteremia, and in pneumococcic types that otherwise have a low death rate. Prevention of bacteremia in patients has not been demonstrated. The response of dogs to pneumococcus type III is quite different from the response of patients. The use of artificial pneumothorax in pneumonia is still in the experimental stage. Until a sufficiently large number of cases have been studied, general practitioners are not justified in employing it. At least all cases of type I, as well as those of type VII and early cases of type II, should receive serum. In them the hazard of pneumothorax appears unnecessary. Even those advocating this therapy do not recommend it for patients with well established consolidation, patients with bilateral lesions and those appearing for treatment after the third day of the disease.

TREATMENT OF PULMONARY TUBERCULOSIS BY ULTRAVIOLET RADIATION

John S. Coulter and Howard A. Carter, Chicago (*Journal A. M. A.*, July 20, 1935), found that ultraviolet radiation of varied intensity in doses sufficient to produce a mild erythema and subsequent pigmentation produced no beneficial effects in cases of active pulmonary tuberculosis or in cases following thoracoplasty. In cases of thoracoplasty with delayed wound healing, local ultraviolet irradiation with a carbon arc lamp increased the growth of healthy granulation tissue and the tendency to epithelization. Near a large city the changing atmospheric conditions introduce obstacles that make the selection of the dosage factors impossible in heliotherapy. The generally listed dangers following ultraviolet irradiation in cases of pulmonary tuberculosis have been exaggerated, provided the dosage of ultraviolet radiation is carefully regulated. In a number of cases there was no suggestion that ultraviolet irradiation had any uniform effect on the red blood cell count, the hemoglobin value or the white blood cell picture.

ITEMS TO BE REMEMBERED

The *Nassau Medical News* gives the following 20 fundamental points of information that every Doctor should have at his tongue's end.

1. That foundations having a combined endowment of more than $30,000,000.00 are definitely committed to the policy of forcing the establishment of Compulsory Health Insurance under state and federal supervision.

2. That one of the most active of these foundations derives its funds from the profits of the Borden Company.

3. That another of the foundations is the creation of Mr. Edward A. Filene, senior officer of the William Filene's Sons Co. of Boston, department store magnate, whose company owns or controls a chain of department stores which include Abraham

& Strauss of Brooklyn, and Bloomingdale's of New York.

4. That the health insurance legislation being sponsored by those groups in Washington as well as in the state legislatures would make compulsory the participation of fully 85 per cent of the population of our cities, exempting only three groups: (1) farm laborers, (2) those employed in small jobs, having no more than two employees, and (3) "white collar" workers earning more than $60.00 per week.

5. That the entire organization and management of the health insurance machine is to be placed in the hands of political appointees.

6. That the director of this huge organization need not be a physician, and that there is no single office in the main administrative group which must be filled by a physician.

7. That the actual medical work is to be supervised by local, full-time, politically appointed "Medical Managers" whose duties are comparable only to those of the "foreman" in an industrial plant, and who have full charge of all medical matters subject to the highest authority of the State Board.

8. That this political, lay Board holds the power of determining who may and who may not practice medicine among the insured group and that to incur the displeasure of the machine means being permitted to practice only among the perhaps 15 per cent of the population not insured.

9. That this political machine is even given power to borrow money against future revenues and to build hospitals, laboratories, clinics "or other facilities" within their discretion.

10. That if a local office should make arrangements which are not satisfactory to the State Board, the latter may come down to the local territory and take over the entire management itself.

11. That this supreme authority extends even tc the matter of fees so that Nassau County could still be classed as a "rural" community and its doctors be paid the same fees allowed those upstate.

12. That as a matter of fact there need not be any fees at all, but rather a fixed salary or an allowance of so much for each person on the doctor's panel.

13. That the scheme includes provisions for cash benefits for loss of time and for maternity benefits.

14. That the lessons learned by other countries where such plans have been tried are totally disregarded in this proposed legislation and that it embodies all of the very worst of these other experiments.

15. That the administrators, statisticians, investigators, supervisors, clerks, and job holders would total more than the number of physicians engaged in caring for the sick.

16. That the wages of this parasitical group would add at least 50 per cent to the cost of rendering the medical service.

17. That the doctors "on the inside" plus the army of lay workers would constitute a political machine which would hold the "balance of power" in any election and would therefore be self-perpetuating.

18. That the same abuses with which you are now familiar in workmen's compensation and medical care of the indigent, must inevitably be present in this scheme and would be multiplied beyond the power of imagination because almost the entire population would be included in the program.

19. That in no country where such a scheme has been tried has there been a reduction in sickness or death rates but that on the contrary there has always been a definite increase in the time lost from industry, because of sickness, and a definite lowering of the standards of medical care.

20. That there is a very real danger of this effort at regimentation succeeding unless every doctor learns the truth and takes time to tell his patients.

CONCURRENT OSTEOGENIC SARCOMA IN BROTHER AND SISTERS

C. W. Roberts and Charles Purcell Roberts, Atlanta, Ga. (*Journal A. M. A.*, July 20, 1935), report on the spontaneous and concurrent development of bone sarcoma in several members of one family: a brother and two sisters, aged respectively 23, 17 and 13 years. The cases strongly support the hypothesis of a genetic origin or diathesis in the development of malignant tumors. It would appear that a spontaneous susceptibility to autonymous cell growth was resident in the osseous systems of these individuals and perhaps localized to it. Three different major long bones were the sites of origin of the tumors (right tibia, right humerus and lower third of right femur). The appearance of all three sarcomas in a right extremity is perhaps accidental rather than dependent on dextrolateral segregation of the malignant factor during oval division. The contemporary occurrence of the tumors suggests the presence of some adjuvant extraneous factor or factors. The cases indicate that injury was never the primary exciting cause but definitely one of aggravation and acceleration of already existent sarcoma. In the third case there is no history of trauma. In each of the other cases there was a rapidly appearing tumor at the site of injury. The first patient had complained of pain for four months prior to a blow he suffered, while the second patient seems definitely to have sustained a pathologic fracture, indicating the silent growth of intramedullary sarcoma. The author's belief that the fracture did not primarily excite malignant change is strengthened by the fact that the second patient had broken the right clavicle three or four years earlier, when she had fallen down a cliff, and normal healing had resulted. There is nothing here to indicate chronic bone disease as a ground for the superimposition of sarcoma. In the third case the degree of influence of surgical insult at biopsy cannot be estimated, but radiologic study showed rapid etxension of bone destruction subsequent to the diagnostic operation. The constitutional symptoms of the three cases were not sugestive of an infectious process. The authors suggest the possibility of a dietary deficiency factor bearing a primary or aggravating rôle in the development of sarcoma.

Book Reviews

NUTRITION WORK WITH CHILDREN. By Lydia J. Roberts. Revised and Enlarged Edition. Chicago. University of Chicago Press. 1935. Price, $4.00.

This book gives not only a survey of the field of nutrition work with children but also much of the material needed for the success in it. The author brings to the task of writing this work her experience not only as an investigator and as teacher of child nutrition, together with much of first hand knowledge with children themselves.

THE SPLEEN AND RESISTANCE. By David Perla, M. D. and Jessie Marmorston, M. D., with a foreword by Davis Marine, M. D. Baltimore. The Williams & Wilkins Company. 1935. Price $2.00.

In this work the authors set out to answer the important questions as to what effect the spleen has on the curious variations in degrees of resistance and susceptability to infectious diseases.

This careful scientific study includes a critical review of the literature as well as the author's own researches.

OBJECTIVE AND EXPERIMENTAL PSYCHIATRY. By D. Ewen Cameron, M. B. New York. The MacMillan Company. 1935. Price $3.00.

The purpose of this book is to bring together in readily accessible form the natural evolution of a science toward quantitative methods, toward experimentation as the main method of fact findings.

A TEXT-BOOK OF CLINICAL NEUROLOGY. By Israel S. Wechsler, M. D. Third Edition Reset. Philadelphia & London. W. B. Saunders Company. 1935. Price $7.00.

In this edition the subject has been brought up-to-date. The previous edition has been quite thoroughly scrutinized. Many statements which appeared obsolete and others which in the light of newer knowledge seemed of doubtful value have been deleted and several parts of the text have been entirely rewritten.

SURGICAL CLINICS OF NORTH AMERICA. Issued serially, one number every other month. Volume 15, Number 3. Chicago Number—June 1935. 239 pages with 119 illustrations. Per clinic year February 1935 to December 1935. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

The contributors to this number are: Drs. Bettman, Christopher, Compere, Crawford, Danforth, Davis, Ellis, Kreuscher, Magnusen, McWhorter, Rolnick Rosi Speed, Verbrugghen.

THE STORY OF MEDICINE IN TNE MIDDLE AGES. By David Riesman, M. D. Illustrated. Paul B. Hoeber, Inc. New York. 1935. Price $5.00.

This work is intended to fill for the medical student the hiatus between the later Greeks and the moderns and to give to the cultured layman some knowledge of the neglected period known as the middle ages.

Society Proceedings

IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL ASSOCIATION

The annual meeting of the Iowa and Illinois Central District Medical Association was held at the Outing Club, Davenport, Iowa, Thursday, July 11.

Dr. James Herbert Mitchell, associate professor of dermatology at Rush Medical College, Chicago, Illinois held a skin clinic from two to five thirty in the afternoon.

Dr. Hugh Cabot, professor of Surgery graduate school of medicine of the University of Minnesota and Consulting Surgeon to the Mayo Clinic, delivered an address on "The Historical Background of Prostatic Obstruction."

Dr. H. Winnett Orr, Orthopedic Surgeon of Lincoln, Nebraska, spoke on "The Treatment of Infected Fractures."

The following officers were elected for the ensuing year.

Dr. Howard A. Wells, Davenport, Iowa, President.
Dr. G. D. Hauberg, Moline, Illinois, Vice-President.
Dr. James Dunn, Davenport, Iowa, Secretary.
Dr. F. E. Bollaert, Moline, Illinois, Treasurer.
Dr. J. C. Sluders, Rock Island, Illinois, Censor.
Dr. Edward Shrohbehn, Davenport, Iowa, Censor.

DR. JAMES DUNN, Secy.

Marriages

ALEX J. ARIEFF to Miss Edith Mendelsohn, both of Chicago June 23.

Personals

Dr. Leon Unger was the guest speaker at the meeting of the Kiwanis Club of Harvey, Illinois, on July 23, 1935. The subject of his talk was "Hay Fever."

Dr. Percy H. Swahlen, St. Louis, addressed the Union County Medical Society, May 2, on "The Kidney in Obstetrics."

Dr. James H. Hutton, Chicago, addressed the Peoria City Medical Society, June 18, on "Recent Advances in Endocrine Diagnosis and Treatment."

Dr. Robert W. Keeton, Chicago, addressed the Whiteside County Medical Society, June 27, on "Feeding the Sick in Acute Infections."

Dr. Felix W. Sokolowski, Chicago, has been made managing officer of the Alton State Hospital, succeeding Dr. Dudley T. Dawson, who took a similar position at the Peoria State Hospital.

Earl A. Dennis, Ph. D., assistant in zoology, School of Medicine, Division of Biological Sciences, University of Chicao, has been appointed

assistant professor and head of the department of biology, American University, Washington, D. C.

Dr. Daniel B. Hayden, associate clinical professor of laryngology and otology, Rush Medical College, University of Chicago, has been appointed head of the department of laryngology and otology, effective July 1. Dr. Hayden graduated from Georgetown University School of Medicine in 1904, and has been associated with the Rush Medical College for many years.

The appointment of Dr. Noel Paul Hudson, since 1930 professor of bacteriology, University of Chicago, as professor and chairman of the department of bacteriology at Ohio State University School of Medicine, Columbus, is announced. He succeeds Dr. Charles B. Morrey, who has resigned. Dr. Hudson took with him as assistant professors in the department Floyd S. Markham, Ph. D., Jargen M. Birkeland, Ph. D., and Dr. Oram C. Woolpert, all graduates of the University of Chicago. Dr. Hudson graduated from Harvard Medical School in 1925.

Dr. Allan J. Hruby was reappointed July 17, 1935, by Mayor Edward J. Kelly as a member of the Board of Directors of the Municipal Tuberculosis Sanitarium for a three-year period, beginning July 1, 1935.

Dr. Ralph H. Kuhns, instructor in neuropsychiatry at the University of Illinois, College of Medicine, has been scheduled to speak at the annual convention of the American Congress of Physical Therapy to be held in Kansas City, September 9, on the subject "Fever Therapy in Dementia Paralytica."

News Notes

—A new $100,000 building at the Elgin State Hospital for the Insane collapsed, July 3, injuring seven people. Steel trusses that were being set in the foundation gave way, it was stated.

—One thousand children from 6 months to 2 years of age will have complete physical examinations and mental tests at the Illinois State Fair in Springfield, August 17-24, under a cooperative plan of the Sangamon County medical and dental societies, local hospitals and the state department of health. Arrangements have also been made to give chest examinations, including electrocardiograms, to from 2,000 to 3,000 adults.

—The Illinois State Department of Health will in the future issue diphtheria antitoxin for treatment purposes in vials of 20,000 units. When a larger dose is desired, a multiple number of 20,000 unit vials should be obtained. The department officials believe that deaths have occurred in the past because the dosage has been too small. For prophylactic purposes the department will continue to issue 1,000 unit vials of antitoxin.

—The Chicago Medical Society will hold its annual golf tournament at the Medinah Country Club, August 7. Those eligible to play are the officers, trustees and past presidents of the society, and members of the council and officers of the branch societies. The trophy is a cup named in honor of the late Dr. J. Warren Van der Slice and donated by Dr. Herman L. Kretschmer in 1933. These tournaments were inaugurated in 1932 by Dr. Austin A. Hayden.

—Two Jessie Horton Koessler fellowships of $500 each have been awarded for the year beginning July 1, one to Robert A. Bussabarger, M. S., for work on "Hematological Studies on Gastrectomized Animals" in association with Dr. Andrew C. Ivy at Northwestern University Medical School, and the other to Clayton G. Loosli, Ph. D., for investigation on "Lung Phagocytes in Experimental Pneumonia" under Dr. Oswald H. Robertson in the department of medicine at the University of Chicago.

—The appointment of a committee on infantile paralysis is announced by the Illinois State Department of Health, to coordinate all control activities incident to an outbreak of the disease. With Howard J. Shaughnessy, Ph. D., Springfield, the following physicians make up the committee:

Sidney O. Levinson, Chicago.
Philip Lewin, Chicago.
Paul H. Harmon, Chicago.
George W. Staben, Springfield.
Winston H. Tucker, Springfield.
Lloyd L. Arnold, Chicago.
Frank Garm Norbury, Jacksonville.
Frank J. Jirka, Director of the State Department of Health.

—The Illinois State Department of Health has announced changes in the quarantine regulations, effective at once. Patients with epidemic encephalitis will be isolated for two instead of three weeks and the quarantine period for measles

is reduced to five instead of seven days from the date of appearance of the rash, provided the catarrhal symptoms have cleared up. Hospital patients with communicable disease may not be removed or discharged without the consent of the local or state health authorities; common carriers are forbidden to transport birds of the parrot family without a certificate signed by the state health authority indicating freedom from psittacosis. Quarantine of patients with whooping cough is made more stringent, requiring isolation of all patients for three weeks after the onset of the paroxysmal cough. The modified quarantine, which permitted these patients, identified by special arm bands, the freedom of the home premises, has been rescinded. Scarlet fever patients must always be isolated for a minimum period of 28 days. Release by laboratory tests of specimens has been abandoned as impracticable. Ophthalmia neonatorum must be reported within six hours after detection, according to the new rules.

Deaths

George H. Brannon, Manhattan, Ill.; Hospital College of Medicine, Louisville, Ky., 1889; a Fellow, A. M. A.; aged 72; died, May 15, of heart disease.

Herman Winfold Bundy, Kankakee, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; a Fellow, A. M. A.; on the staff of St. Mary Hospital; aged 55; was killed, May 19, in an automobile accident.

Louis Joseph Cordonnier, Greenville, Ill.; Washington University School of Medicine, St. Louis, 1907; a Fellow, A. M. A.; past president of the Bond County Medical Society; aged 54; died, May 26, of coronary occlusion.

Charles D. Gardiner, Grand Tower, Ill.; Hospital College of Medicine, Louisville, Ky., 1877; aged 81; died, May 15, in a hospital at Murphysboro, of injuries received in a automobile accident.

Jerome L. Harrell, Norris City, Ill.; American Medical College, St. Louis, 1884; member of the Illinois State Medical Society; past president of the White County Medical Society; formerly member of the state legislature; bank president; aged 76; died suddenly, May 23, of chronic myocarditis.

Alonzo Russell Jarman, White Hall, Ill.; Chicago Medical School, 1922; A Fellow, A. M. A.; past president and secretary of the Greene County Medical Society; proprietor of the White Hall Hospital; aged 41; died, June 26, in the Palmer Sanatorium, Springfield, of pleurisy with effusion.

Thomas Henry Kelley, Chicago; Rush Medical College, Chicago, 1903; a Fellow, A. M. A.; fellow of the American College of Surgeons; on the staffs of the Illinois Central Hospital, Jackson Park Hospital and the South Shore Hospital; aged 53; died suddenly, June 11, in the Sacred Heart Sanitarium, Milwaukee, of coronary sclerosis, angina pectoris and coronary occlusion.

John Armour Kirkpatrick, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; aged 81; died, May 29, in St. Luke's Hospital, of hypertrophy of the prostate and chronic myocarditis.

Clarence Loeb, Winnetka, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; aged 59; died, May 26, of dilatation of the heart.

Elizabeth Matthews, Springfield, Ill.; Woman's Medical College, Chicago, 1890; served with the American Red Cross during the World War; aged 73; died, June 9, of cerebral hemorrhage.

Frank Gillingham Morrill, Peoria, Ill.; Northwestern University Medical School, Chicago, 1908; a Fellow, A. M. A.; served during the World War; on the staff of St. Francis Hospital; aged 54; died, June 9, of coronary thrombosis.

John Gabriel O'Malley, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Illinois State Medical Society; served during the World War; on the staff of the Columbus Hospital; aged 46; was found dead in bed, May 24, of coronary thrombosis and diabetes mellitus.

John William Patterson, Oconee, Ill.; College of Physicians and Surgeons of Chicago, 1893; aged 67; died, June 7, of abscess of the middle ear and meningitis.

Isaac Hale Rathbun, Spring Valley, Ill.; Rush Medical College, Chicago, 1878; aged 84; died, June 11, of carcinoma of the larynx.

Alfred Emil Staps, Chicago; National Medical University, Chicago, 1898; a Fellow, A. M. A.; Chicago Medical School, 1921; field health officer of the city board of health; aged 64; died, May 30, of arthritis.

George Swarz, Chicago; Bennett Medical College, Chicago, 1912; aged 64; died, June 13, in the Michael Reese Hospital, of uremia.

Percy Louis Taylor, Springfield, Ill.; Barnes Medical College, St. Louis, 1898; member of the Illinois State Medical Society; aged 61; died, May 24, in St. John's Hospital, of hypertensive arteriosclerosis.

Benjamin Franklin Uran, Kankakee, Ill.; Bellevue Hospital Medical College, New York, 1872; member of the Illinois State Medical Society; aged 87; died, June 10, in St. Mary Hospital, of myocarditis.

Eugene Arthur West, Chicago; Marquette University School of Medicine, Milwaukee, 1913; member of the Illinois State Medical Society; aged 50; on the staff of the Frances Willard Hospital, where he died, June 18, of pulmonary edema and cerebral hemorrhage.

Asa L. T. Williams, Vandalia, Ill.; Marion-Sims College of Medicine, St. Louis, 1898; a Fellow, A. M. A.; president and formerly secretary of the Fayette County Medical Society; on the staff of the Mark Greer Hospital; aged 64; was found dead, June 13.

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—J. S. McLester: "Nutrition and Diet in Health and Disease."

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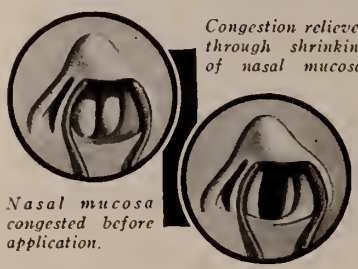
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Office of Publication 715 Lake Street, Oak Park, Illinois

Vol. 68, NO. 3 OAK PARK, ILL., SEPTEMBER, 1935 $3.00 a Year

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Entered as Secon-class Matter July 21, 1919, at the Post Office, Oak Park, Illinois, under the Act of March 8, 1879. Acceptance for mailing at special rate of postage for in Section 1102, Act of October 8, 1917, authorized July 15, 1918.

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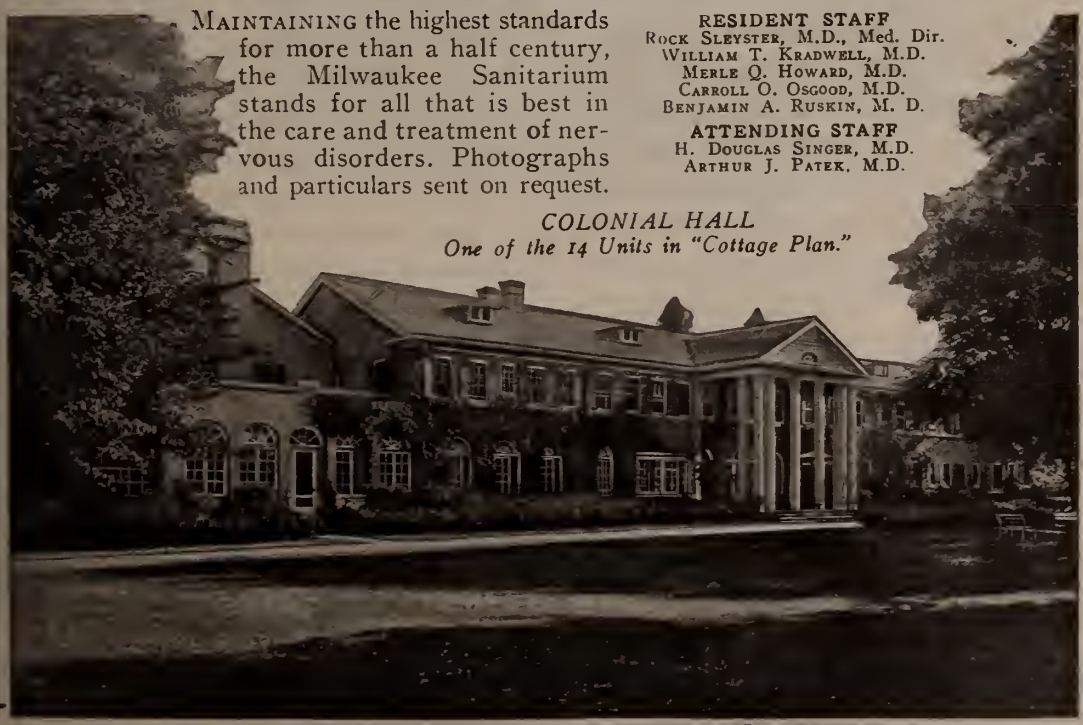
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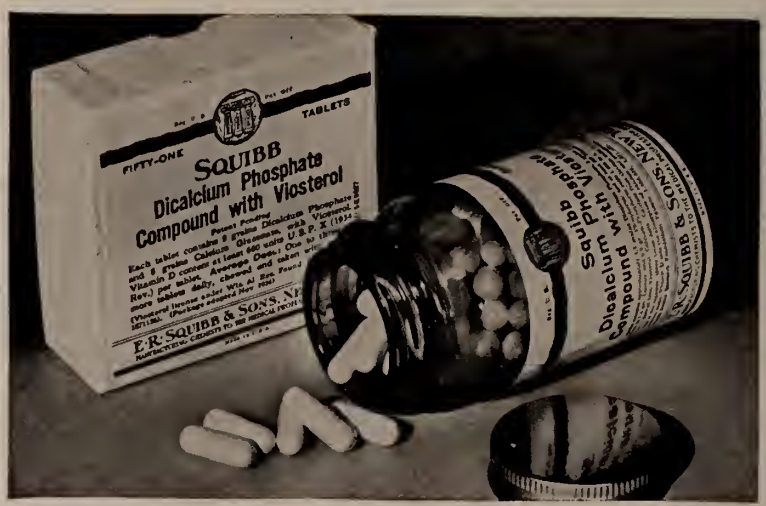
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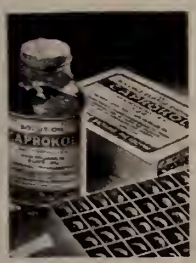
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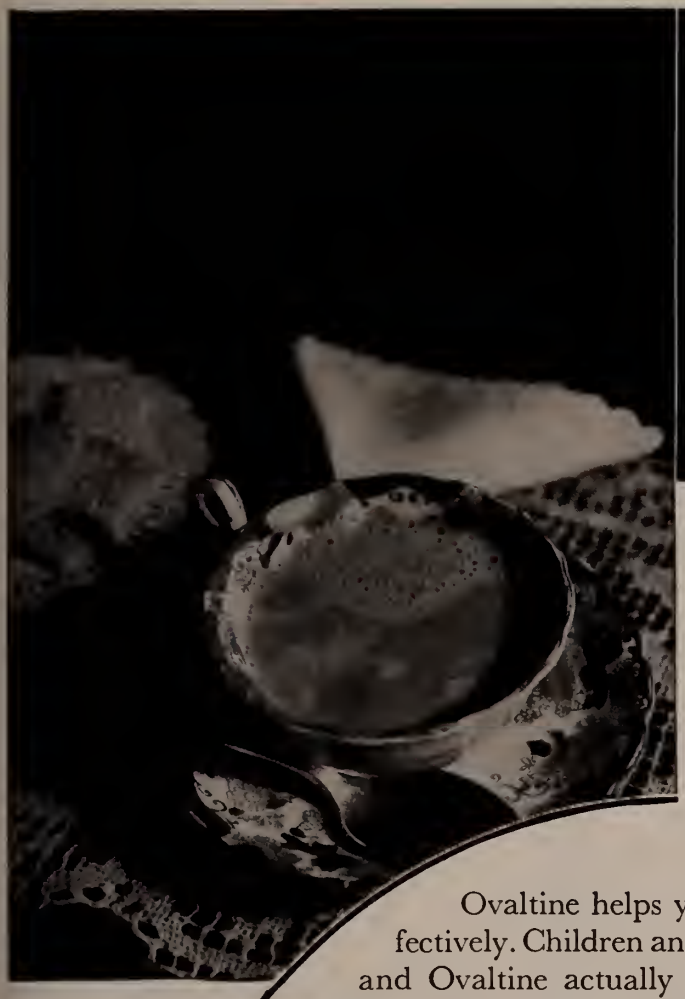
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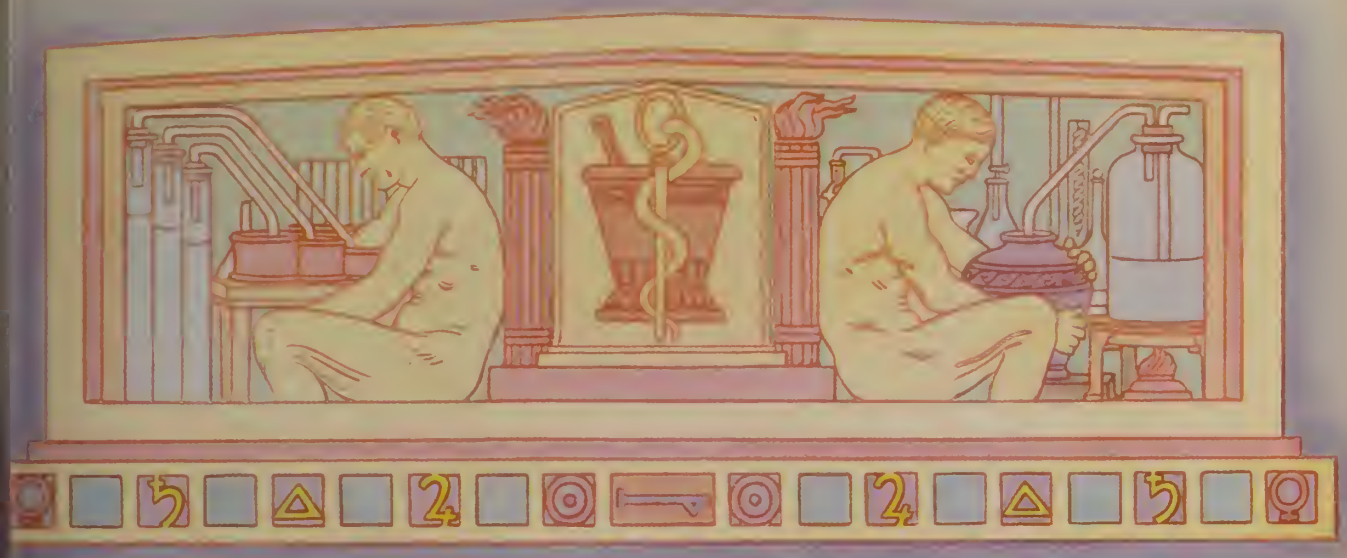
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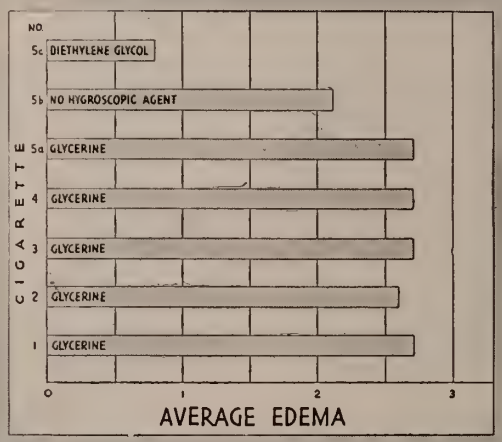
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"Evans (4) and also Mason (5) (6) (7) (8) have shown that a complete disintegration of the germinal elements takes place in which the germ cells and also the germinal epithelium are eventually destroyed. Kudrjaschov (9) confirmed these findings and also demonstrated that, although the male secondary sexual characteristics undergo regression at the same time that the germinal elements disintegrate, the interstitial cells apparently remain normal. He has thus shown the probability that the male sex hormone has its source in some of the developing germinal elements rather than in the interstitial cells of Leydig as is commonly believed. More recently, Mason (10) has found that the type of germ cell destruction produced by vitamin E deficiency is quite characteristic and readily distinguishable from that occurring as the result of inanition of a dietary deficiency in vitamin A."

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1. Jour. of Biological Chemistry, Vol. 104. No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

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FOOD IN THE OPEN CAN

● One question commonly asked concerning canned foods is whether or not the contents of the can should be removed to another container immediately after opening. This question has its origin in the belief that if food is allowed to remain in the can after opening, it will absorb an injurious substance from the can and thus become hazardous to the health of the consumer.

For this belief there is not the slightest foundation of fact. Its origin probably lies in the old "ptomaine" concept of food poisoning. Why it should persist in the light of present day knowledge is a mystery. The belief that food must be emptied immediately from the can has been as thoroughly discredited as the "ptomaine" theory of food poisoning (1).

Food poisoning is usually caused by the ingestion of food containing certain bacteria or their metabolic products. It is, in most instances, the direct result of improper preparation, handling, or storage of food (2) (3).

We have previously described in these pages how all canned foods are subjected to thorough heat treatment which destroys not only pathogenic bacteria and their products, but also the most resistant organisms which may cause spoilage. Consequently, the freshly opened can is the cleanest container in the average kitchen.

There is, therefore, no reason from the standpoint of food poisoning why the food must be removed immediately after the can is opened. In addition, food will spoil no faster or no slower in the open can than in any other open container. The same precautions should be used in its preservation as are used for any other cooked food.

With certain foods, it is desirable from the standpoint of quality to remove the food from the can. Such foods, usually those of an acidic nature, may act slowly on the can after air is admitted and small amounts of tin and iron may be absorbed. The traces of these metals have been shown by a Government laboratory to be entirely innocuous (3), but iron in particular may impart a slight taste to the food.

Modern science has dispelled the old belief that, from the standpoint of health, food must be removed immediately from the can. The cooperation of the medical profession in dispelling this old and unfair prejudice against their products is earnestly solicited by the members of the American canning industry.

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Journal American Medical Association, 90, 459, 1573 (1928)

(2) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century Co., N. Y. 5th Edition

(3) Food-Borne Infections and Intoxications, F. W. Tanner, Twin City Printing Co., Champaign, Illinois

This is the fourth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.

ACCEPTED AMERICAN MEDICAL ASSN. Committee on Foods

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 68 | OAK PARK, ILL., September, 1935 | No. 3

ILLINOIS MEDICAL JOURNAL

Published montbly by the Illinois State Medical Society under tbe direction of the Publication Committee of the Council.

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Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 1618 Juneway Terrace, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying witb this rule will be returned, if convenient.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

Editorials

BUREAUCRATS REFUSE HISTORY'S LESSON

BUREAUCRACY RUINED ROME. UNLESS IT IS CHECKED IT WILL RUIN AMERICA

Some time since the Editor of the ILLINOIS MEDICAL JOURNAL pointed out the equivalence between the pre-debacle conditions of ancient Rome and the condition into which bureaucrats, socialists and communists are attempting to push our country, on the lever of unseemly and crushing taxation.

The following comments from contemporary authority are of interest in their parallelism of viewpoint.

The late Herbert Hadley, former governor of Missouri, in his able book, "Rome and the World Today," in which he incorporated much of his findings as an educator, economist and student of history, drew, among other conclusions, that "Destroying the right of private ownership of property, denying to a man of talent and ability the right to advancement or extra reward for his services, brought upon the Roman world a social, industrial and economic breakdown that was the natural result of these efforts to run counter to the inflexible rules of human nature and the inexorable laws of supply and demand. Then, as always in the history of the world, have such efforts not only failed but produced a melancholy train of misery and misfortune. Hope and ambition were banished from the hearts and minds of men."

Commenting upon which and writing in the *Saturday Evening Post* of July 20, 1935, says Raymond G. Carroll:

"The Roman Emperor Diocletian, in 301 A.D., promulgated an edict fixing a maximum price for provisions and other articles of commerce, and a maximum wage for every service, whether *by a common laborer, an experienced lawyer or physician.* He was warned against price fixing

and wage making by the abortive attempts in the same direction by the Assyrians, the Persians and the Egyptians centuries before, but all experience was brushed aside.

"There was but one penalty for a violation of the edict of Diocletian, engraven on stone and set up in every market place throughout the Roman Empire, and that was death, both for the one who asked for an excess of the official price and for the one who paid it. Deportation was an alternative penalty in extreme extenuating cases. *Trade was thus forbidden to fluctuate, exactly as now, and no allowances were made for differences of conditions of production or transportation.*

"What happened in Rome? The Diocletian edict, plus the commercial speculation of insiders and several bad harvests, ruined the commerce of the empire. The depreciation of the currency that followed brought about a return to a system of barter, and Romans no longer bought and sold on credit or with the aid of money. Under Diocletian, the Senate became a political nonentity, the last traces of republican institutions disappeared and were replaced by an absolute monarchy approaching to depostism.

"Later, under the Codex Theodosianus, a collection of imperial constitutions for the benefit of public officials, arranged by Theodosius II, emperor of the East, we find Roman bureaucracy at its apex. Every new condition had been given a new law, and every new law received a new official or bureau to enforce it. The end was that the machinery of government in the fifth century became so cumbersome and so complicated that in the increasing incapacity and disorganization of those times it almost ceased to function. *Thus ancient Rome died, east and west.*

"The practice of establishing a new bureau or commission to deal with every new problem of government or to correct every real or imagined evil has been the outstanding earmark of the New Deal. The result has been, as with Rome, the creation of a vast, burdensome and costly bureaucracy, which criticism, based upon the judgment of past times, insists will prove more of an evil than those which it was created to correct."

EVERY PHYSICIAN IN ILLINOIS SHOULD BELONG TO THE STATE MEDICAL SOCIETY

Doctor, read carefully what you will receive from membership in the Illinois State Medical Society.

The local medical society is the bulwark of the physician.

Money spent in dues for a state or local medical society is one of the safest, surest investments a physician can make.

For the nominal dues of approximately $10.00 a man gets medico-legal protection and his fellowship in the society of his confreres, as well as eligibility to membership in the American Medical Association.

The dues vary in the respective counties, from $7.00 downstate to $10.00 in Cook County per year, depending upon the local activities of the county society in which you reside. Illustrative of the benefits secured from such affiliation rate the following:

1. For approximately $10.00 per year you get medico-legal protection; membership in your County and Illinois State Medical Societies and the Illinois Medical Journal. Membership in the above makes you eligible also to fellowship in the American Medical Association. Affiliation and association with this large, representative body of men is of great value and importance to every physician.

2. Medical Defense. Out of your annual dues paid, the trustees of the State Medical Society are required to turn $1.50 over to the "medical defense committee" for the protection and defense of members of the society against whom suits for malpractice or damages may be brought. For years the Illinois State Medical Society has been meeting all expenses of such litigation; that is, court costs, attorney's fees, costs of appeals, witness fees, the cost of record —no limitation being placed on this sort of expense of an individual case.

This means that if you become a member of the Illinois State Medical Society you will be defended in every effective manner possible against suits for damages for alleged malpractice, as well as attempted blackmail. This one feature alone is worth many times the cost of membership. Private defense companies are

charging $20.00 to $75.00 per year and upwards for the defense and indemnity.

Medical Legislation. Also $1.00 is set aside for a fund to be used by the Legislative Committee for the purpose of combating vicious legislation.

Members of the Illinois State Medical Society are also eligible to membership in any or all of the various affiliated special medical societies in Illinois.

3. Membership in the Illinois State Medical Society. All members of any county Medical Society are *ipso facto* members of the Illinois State Medical Society and will receive all publications of the State Society without any additional fees, dues or subscriptions.

Memberships in the state and local society are necessary before you can affiliate with the reputable professional societies of the country and the American Medical Association. In some states a year's membership in the local society is required before they can secure a license by examination or reciprocity.

4. The Journal of the Illinois State Medical Society. This Journal, owned and published monthly by the medical profession of Illinois, is sent free to each member. The official organ of the Illinois State Medical Society, one of the largest and most influential state organizations in the country, it is among the most comprehensive state medical journals, both in point of circulation and editorial scope. It ranks highly, both in size and in influence, with all medical journals. *Further, in the fight against economic evils oppressing the medical profesion, the* Illinois Medical Journal *has been not only a leader, but ever a pioneer.* In the Journal is printed the proceedings of the Illinois State Medical Society; the papers presented at the Chicago Medical Society, which is the largest local medical society in the world. The Chicago Medical Society meets every week, and it has fifteen branches, proceedings of which also are printed in the Illinois Medical Journal, as well as of eleven affiliated societies, namely: Gynecological, Pathological, Ophthalmological, Surgical, Urologocial, Laryngological and Otological; Orthopedic, Pediatric, Neurological, Roentgen Ray, Medical Legal. On the programs of these various societies appear from time to time a great many of the most eminent men of America and Europe. In the Journal also is published the papers read and the reports of all meetings of the respective county society meetings throughout the state, as well as all the news of interest to medical men in Illinois and throughout the United States. The price of the Journal for non-members is $3.00 per year. It is sent to all members of the Illinois State Medical Society, as one of the perquisites of membership.

5. Reformation of Medical Conditions. Many reforms are being carried on which in previous years were impossible. A few years ago the Medical Legislation Committee of the Illinois State Medical Society succeeded in having passed by the Illinois State Legislature what is considered the best medical practice act in the United States. This Societ yhas a representative as chairman of the committee in Springfield, and the committee is working to the good advantage of medicine in this State. The committee is receiving financial support from the State Medical Society as necessity requires. Every year different cults and branches of so-called medicine try to have special laws passed which will license them through examinations which do not conform to the medical practice act. It is only through large membership, financial and moral support that this type of legislation can be controlled.

Abuse of medical charities, illegitimate and unethical methods of practice, and all the other evils which have embarrassed the physician and reduced his income can only be successfully handled by a well organized and compact profession, able to take a positive stand on these matters and to carry out its decisions. There is in view (under thorough organization) relief from many of our present difficulties. There never will be devised a patent mechanism which will relieve the doctor of participations in our political activities. Physicians must govern themselves or they will be misgoverned.

6. Eligibility to Fellowship in the American Medical Association. The only way in which a physician can become a member of the State or National organization is through the local society of the County in which he lives. The advantages and privileges to be gained through membership in this great association need not be enlarged upon. Fellowship in the American Medical Association includes The Journal of the American Medical Association, the greatest weekly medical journal published in the United States.

7. Regulation of Pharmaceutical Prepara-

tions. The American Medical Association has established a committee, known as the Council on Pharmacy and Chemistry, for the purpose of examining, analyzing and reporting from time to time to the profession its findings on the most important proprietary preparations, such as the general practitioner is constantly being importuned to buy and prescribe for his patients. This movement, which is of vital importance to every practicing physician, deserves the support of all members of the profession, regardless of society affiliations. By becoming a member of your local society you will come more closely in touch with organized and systematic efforts for the uplift and benefit of the profession at large.

8. The Completion of Medical Organization in Illinois. The Illinois State Medical Society today comprises three-fourths of the reputable members in the State. It is to the interest of every physician in Illinois to complete and strengthen this organized and concerted movement on the part of the profession for the betterment of local conditions. The supression of quackery, the prevention of enactment of vicious legislation, and the consummation of other needed reforms can only be accomplished by complete and thorough organization and unanimity on the part of the profession of the State. In this work the support and cooperation of every reputable physician is requested.

The welfare of your profession depends upon the support you give it. A well-organized profession means greater respect and better compensation.

The Illinois State Medical Society desires your support and cooperation. Go to the next meeting of your local or county society and meet the other physicians of your neighborhood. Ask one of the officers of the society for an application blank, fill out the blank, either send or, better, hand it to the President or Secretary, together with the fee for membership in your county society, and thus secure membership in the organized profession of the state and participate in the benefits and privileges of medical organization.

Qualifications for Membership. Every registered physician residing in any county who is of good moral and professional standing and who does not claim to practice any exclusive system of medicine, shall be eligible for membership.

EDWIN R. EMBREE'S IDEAS MAY OR MAY NOT "PARALLEL THE PROGRAM OF THE MEDICAL PROFESSION"

Announcement that the Julius Rosenwald Fund plans to expend something more than 28% of a million dollars during the coming year for "the furthering of socialized medicine" and for "welfare work and rural education among colored persons" must strike a decidedly sour chord in the hearts of the thousands of underpaid—if paid at all—rural practitioners!

These are the men who have dared daily obscurity and high hazard in isolated, poverty stricken country communities and whose personal sacrifices in the causes of humanity and decent Americanism comprise a philanthropy of depth, breadth and richness such as is far beyond the most imaginative scope of the professionally philanthropic "endowment funds" and "foundations."

These are the men to whom socialized, professionalized humanitarianism is well known as the most venomous viper in our entire social structure, since it functions as destroyer when it pretends to be a universal healer.

Commenting on the situation, the Journal of the American Medical Association, under date of May 25, 1935, remarks, under the heading, "Rosenwald Fund Announces Plan for Socialization":

"The following item from the Chicago *Tribune* of May 20 indicates the plans of the Rosenwald Fund for the coming year:

" 'Trustees of the Julius Rosenwald Fund voted yesterday an appropriation of $284,000 to be expended in the fiscal year beginning July 1 for welfare work and rural education among colored persons, and for furthering socialized medicine. Edwin R. Embree, president of the Fund, said that the Rosenwald effort to place competent medical service and hospitalization within the reach of persons of moderate means paralleled the program of the medical profession. He quoted Michael M. Davis of the Fund's medical division as reporting that 344 plans to cut the cost of medical care, or to make it easier for the average family to pay for it, had come to his office in the last year. Certain of these projects, he said, had been endorsed in principle by the American College of Surgeons.'

"The medical profession should be aware of this propaganda in behalf of state medicine. In the crystallization of public opinion, physicians

will do well to bring the point of view of the medical profession to the attention of their patients, women's clubs, Rotary clubs, Kiwanis clubs, chambers of commerce and similar organizations."

This comment of the J. A. M. A. is quite in keeping with the tenets so long preached by the Illinois Medical Journal. It will be interesting to note how Edwin R. Embree's ideas "parallel the program of the medical profession." Mr. Embree may be a mind reader. He certainly is not a man of medicine, even if he is president of an endowment fund.

ONE SWALLOW OF SOCIALIZED MEDICINE WAS TOO MUCH FOR SOCIALIZER FILENE!

Edward A. Filene, organizer of the Twentieth Century Fund and one of the most ardent proponents for the practice of medicine by the laity, has just been having a stiff dose of his own medicine. We trust the therapy was to his liking. We may be excused for being a doubting Thomas in this regard, since Mr. Filene did not stick by his own prescriptions. In other words, though stricken with a severe case of pneumonia while on a visit to Russia, Mr. Filene was not willing to entrust himself to the mercies of that socialized medicine which he and scores of similarly misguided would-be philanthropists are so anxious to inflict upon the United States of America. For, while the Soviet dictator, Joseph Stalin, according to dispatches sent out by the Associated Press, ordered all medical facilities of the Kremlin placed at the Boston merchant's disposal, an appeal for help was made to Nazi Germany, still decidedly capitalistic. "The Foreign Office wired the Soviet Consulate in Berlin to grant an immediate visa to the *German heart and lung specialist,* Prof. Fritz Meyer, so he could come here tomorrow by airplane," was the dispatch sent out from Moscow under date of Aug. 7 by the Associated Press.

The proletariat of Russia is deprived of all possibility of making such a cry from Macedonia as was the privilege of Mr. Filene. If Red Medicine so highly endorsed by the man who would be one of its godfathers in America is insufficient for him, how do the suffering millions of Rusisia's own poor manage with it? Yet that is the sort of medical care that Mr. Filene and his friends are mixing up for the United States citizenry.

The whole thing smacks somewhat of the adage

"When the devil was sick, the devil a saint would be;
When the devil was well, the devil a saint was he."

A sick socialist is very apt to be a capitalist, when it comes to taking care of himself.

U. S. GOVERNMENT CONDEMNS SALE OF DINITROPHENOL

Weight Reducer Causes Blindness

Dinitrophenol, Sold Under Many Names, Also May Damage Liver, Kidneys, Heart, Or Sensory Nerves. It Causes a Blood Disorder, and Even Death

Blindness from the use of dinitrophenol for reducing weight has not stopped the use of the drug in spite of repeated warning, says W. G. Campbell, Chief of the Federal Food and Drug Administration.

The eye cataracts observed in dinitrophenol poisoning develop with a rapidity and malignancy hitherto unknown, and result in total blindness within a comparatively short time. This drug may produce acute poisoning, the symptoms of which are nausea, stomach and intestinal distress, sweating, flushed skin, high fever, rapid breathing, and muscular rigor followed by death. The drug also damages the liver, kidneys, heart and sensory nerves. It produces agranulocytosis, a blood disorder also noted in cases of poisoning with amidopyrine, a common ingredient of medicines for the relief of pain.

The Food and Drugs Act, according to Mr. Campbell, is practically inoperative against this public health hazard. He says, "The only application of the law to these products is through some misstatement of fact or some false and fraudulent curative claim in the labeling. In any event, the law can be invoked only when the product has been transported across a State line."

"There is little doubt," continues Mr. Campbell, "that the cases of progressive blindness recently reported in California are the result of medication with dinitrophenol. It is to be regretted that the present Federal law is silent with respect to the control of dangerous drugs."

Of all the products containing dinitrophenol now on the market, only one has been confiscated under the Food and Drugs Act, the Administration reports. That was "Slim," against which

legal action was brought because of a label claim that it was "safe to use," whereas medical opinion is unanimous to the contrary. This proceeding was approved by Mr. Campbell, who states that in the absence of affirmative control over dangerous drugs, and to achieve one of the essential objects of the Food and Drugs Act—the protection of the public health—it is the purpose of the Administration to take advantage of any available legal technicality in proceeding against all products containing dinitrophenol. This, he points out, is contrary to the usual practice of the Administration in enforcing the Food and Drugs Act.

Dinitrophenol is sold under many fanciful names, sometimes accompanied by a statement of the presence of the drug itself. Some of the names under which it has been or is now being sold are reported by the Food and Drug Administration as follows: Nitromot, Dinitrolac, Nitra-Phen, Dinitris, Formula 281, Dinitrose, Nox-Ben-Ol, Re-Du, Aldinol, Dinitrenal, Prescription No. 17, Slim, Dinitrole, Tabolin and Redusols.

"It is interesting to note," said Mr. Campbell, "that all the so-called reducing preparations on the market fall into three categories: first, laxatives that deny the body the benefit of its food intake, as the salts, crystals and herb teas; second, obvious frauds that depend for effect upon the stringent diets prescribed as part of the 'treatment,' as 'Syl-Vetto' and 'Stardom's Hollywood Diet'; and third, the unquestionably effective but dangerous articles containing thyroid or dinitrophenol, both of which act by speeding up the utilization of food. All of them are unwarranted impositions upon the public, which cannot evaluate claims made for the preparations, and cannot readily appreciate the harm that may result from careless use of the products."

TWENTY FACTS RELATIVE TO MEDICAL FOUNDATIONS

The *Nassau Medical News* is authority for the following data pertaining to foundations:

1. That foundations having a combined endowment of more than $30,000,000.00 are definitely committed to the policy of forcing the establishment of compulsory health insurance under state and federal supervision.

2. That one of the most active of these foundations derives its funds from the profits of the Borden Company.

3. That another of the foundations the creation of Edward A. Filene, senior officer of the William Filene's Sons Co. of Boston, department store magnate, whose company owns or controls a chain of department stores which include Abraham and Strauss of Brooklyn and Bloomingdale's of New York.

4. That the health insurance legislation being sponsored by those groups in Washington, as well as in the state legislatures, would make compulsory the participation of fully 85 per cent. of the population of our cities, exempting only three groups: (1) farm laborers, (2) those employed in small jobs, having no more than two employees, and (3) "white collar" workers earning more than $60.00 per week.

5. That the entire organization and management of the health insurance machine is to be placed in the hands of political appointees.

6. That the director of this huge organization need not be a physician, and that there is no single office in the main administrative group which must be filled by a physician.

7. That the actual medical work is to be supervised by local, full-time politically appointed "medical managers," whose duties are comparable only to those of the foreman in an industrial plant and who have full charge of all medical matters, subject to the higher authority of the state board.

8. That this political lay-board holds the power of determining who may and who may not practice medicine among the insured group, and that to incur the displeasure of the machine means being permitted to practice only among the perhaps 15 per cent. of the population not insured.

9. That this political machine is even given power to borrow money against future revenues and to build hospitals, laboratories, clinics, "or other facilities" within their discretion.

10. That if a local office should make arrangements which are not satisfactory to the state board, the latter may come down to the local territory and take over the entire management itself.

11. That this supreme authority extends even to the matter of fees, so that Nassau County could still be classed as a "rural" community and its doctors be paid the same fees allowed those upstate.

12. That, as a matter of fact, there need not be any fees at all, but rather a fixed salary or an allowance of so much for each person on the doctor's panel.

13. That the scheme includes provisions for cash benefits for loss of time and for maternity benefits.

14. That the lessons learned by other countries where such plans have been tried are totally disregarded in this proposed legislation and that it embodies all of the very worst of these other experiments.

15. That the administrators, statisticians, investigators, supervisors, clerks and job holders would total more than the number of physicians engaged in caring for the sick.

16. That the wages of this parasitical group would add at least 50 per cent. to the cost of rendering the medical service.

17. That the doctors "on the inside," plus the army of lay-workers, would constitute a political machine which would hold the "balance of power" in any election and would therefore be self-perpetuating.

18. That the same abuses with which you are now familiar in workmen's compensation and medical care of the indigent must inevitably be present in this scheme, and would be multiplied beyond the power of imagination because almost the entire population would be included in the program.

19. That in no country where such a scheme has been tried has there been a reduction in sickness or death rates, but that, on the contrary, there has always been a definite increase in the time lost from industry because of sickness and a definite lowering of the standards of medical care.

20. That there is a very real danger of this effort at regimentation succeeding unless every doctor learns the truth and takes time to tell his patients.

SENATOR ALLEN ON STATE MEDICINE

The Medical Bulletin, Sedgwick County Medical Society, Kansas, is authority for the following abstract of an address by former Senator Henry J. Allen:

"The time is ripe for social workers, with the present trends in government administration, to advance with renewed impetus their contention that medicine should be socialized as one of the natural functions of the state." This warning was offered early in the address of Henry J. Allen, former governor and U. S. senator from Kansas, when he spoke to the members of the Sedgwick County Medical Society on June 18, the first of a series of monthly luncheon meetings being held during the summer.

Senator Allen, who, besides enjoying international renown as a statesman, is recognized as a keen student of sociology and economics, presented a clear and comprehensive discussion of the history of socialized medicine in Europe. More than half of the entire membership of the medical society was present at the luncheon meeting. The speaker was introduced by Dr. E. S. Edgerton, who prefaced the address with an account of present-day trends in medical economics in America.

The speaker described the results in Germany and England under socialized medicine which he had observed during his several trips abroad during recent years. Since 1883, when medicine was socialized in Germany with a system for compulsory health insurance, the doctor has been reduced to a state of pauperization. German doctors make an average of $800 per year and the only doctors who are affluent are those who specialize in diseases that the poor cannot afford.

Under the German system of compulsory health insurance, the employee contributes 18 cents per week, the employer 18 cents, and the state another 18 cents, into a fund for the state insurance. Senator Allen declared that Germany had discovered under state medicine that diseases have multiplied alarmingly because of constant malingering and the load has reacher proportions far above the anticipations of the original proponents. The public, he said, is the beneficiary of the system and would not want to abandon state medicine. The people have been taught to look to the state for medical care and protection against the other contingencies of life.

Senator Allen does not anticipate further radicalism in Germany. Germany is now completely socialized and will save the government from further immoderation of more severe socialization. Hitler is sufficiently radical to make improbable a more dangerous swing toward Fascism.

England felt the wave of socialization from Germany in 1911 when she adopted the German system for old age pensions, unemployment insurance and compulsory health insurance for those under $1,200 annual income. The German precedent was less broad in that it was restricted

to those having an annual income of $500 or less. The cost of health insurance in England was about the same, requiring about 18 cents per week each from the employer, employee and state.

The United States are now feeling the wave of socialization from England just as she felt it from Germany. Under her system of socialized government, England is spending about $1.15 per citizen annually. Last year the U. S. spent 16% more per citizen than did our mother country. Doctors in England are now receiving an annual income of about $1,000. Those who receive more are specialists who treat the wealthy.

Optimism was expressed in the statement of Senator Allen that "The keen ability of the profession in this country should be sufficient to save this country from the disaster that has befallen it in England, Germany, Austria, Poland, Italy, and other countries of Western Europe where medicine is practiced under the direction and payroll of the state."

The danger in America is imminent. One-fifth of the people are now beneficiaries of the U. S. Government. Sentimentalism will be used to extend the social phases of government to make the practice of medicine a function of the state.

Danger signals of threats to medical practice in the U. S. were pointed out by the speaker. He said: "The medical profession in the U. S. must lead the way to a middle ground. I can't help but believe that the profession will be able to work out a modified answer. But medicine cannot hope to be left untouched; some change will have to be made. There is no field of human activity in the U. S. that is so challenged to change as the practice of medicine.

"The great thing we call private practice has reached a plane in the U. S. that is worth saving. But the problems facing the medical profession will not solve themselves. An intelligent solution must come from within the profession.

WHAT THE UNITED STATES CONSTITUTION MEANS

The *Sentinels of the Republic,* a non-partisan organization, proposes to tell—

The Homeowner: That it is the Constitution *—not the Congress or the Executive*—which protects him in the ownership and the sanctity of his home.

The Wage-earner: That it is the Constitution *—not the Congress*—which safeguards his independence of action and the fruits of his toil.

The Business Man: That it is the Constitution *—not the Congress*—which maintains the sanctity of contracts and his freedom to manage his own affairs.

The Professional Man: That it is the Constitution—*not the Congress*—which guarantees him both the opportunity and the compensation for his enterprise.

The Young: That it is the Constitution—*not the Congress*—which offers them freedom to rise to whatever heights their ability may carry them.

The Mature: That it is the Constitution—*not the Congress*—which assures stability in government and in the affairs of life.

All Citizens: That it is the Constitution—*not the Congress*—which assures them personal security, an equal voice in government, freedom of speech, freedom of religion, and the other rights demanded by self-reliant, self-respecting Americans.

STARTLING RESULTS REVEALED BY RECHECK OF PATIENTS IN THE GERMAN SICKNESS INSURANCE SETUP

Medical Times is authority for the following menacing feature of sickness insurance in Germany. We quote:

"Patients are visited in their homes by controlling officials who have to convince themselves that the patient is really ill and not doing any work. The sick insurance engages so-called confidential doctors who have to submit the patient to a final examination to see whether he is too ill to work. The results of such examinations are to a great extent startling. Here is one instance from among thousands: 2,008 patients were ordered to appear for a final examination. Eight hundred sixteen of them at once declared their complete recovery; 289 were found to be well by the confidential doctor. So nearly half of them were not ill at all.

"The confidential doctor is, so to say, the medical policeman who not only controls the patients but also his fellow doctors who are treating them.

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat."

AND IT GOES DOUBLE FOR ANY ATTEMPT TO SOCIALIZE MEDICINE

Dr. Alfred P. Sloan, Jr., commenting on the Supreme Court decision anent the NRA, said, among other things: "Sooner or later we are bound to recognize that regimentation and bureaucracy have no part in our national economy. They can only produce one result—lowered efficiency, increased costs, and reduced standard of living." And that goes double for any attempt to socialize medicine or to regiment the profession in a compulsory health insurance scheme.

Senator William E. Borah says:

"With bureaus or departments, the appetite increases with what it feeds upon. It is well to remember that the taxpayer is the same for the state taxes as for the Federal Government. It makes little difference whether one government, the state or the federal, imposes the tax. There is only one people to take care of both taxes. We should not expend a dollar, nor impose a single item of expense upon the people of this country until relief from taxes is in sight."

Attorney General Crim says: "The Department of Justice is staggering under the load imposed by sumptuary and police laws—laws that within all common sense fall within the natural sphere of local governments. Unless there is a halt in this tendency to saddle all responsibilities on the Federal Government, the time will come when we will have in Washington a bureaucracy knowing no master—and one day the country will be in ruins."

Charles Evans Hughes, when he was Secretary of State, told the members of the American Law Institute in convention at Washington:

"We have in this country the greatest law factory the world has ever known. Forty-eight states and the Federal Government are turning out each year thousands of new laws while at the same time the courts in the performance of judicial duty are giving us thousands of precedents—175,000 pages of decisions in a single year, an average of 12,000 or more statutes every year, and an annual average of 13,000 or more permanently recorded decisions of highest courts."

The danger which every republic should fear is over-centralization, with the subsequent substitution of domination by one man for the rule of the people. Germany is the historic symbol of absolutism. We have recently concluded a war, undertaken, we are told, that democracy might not perish from the earth. If this is true, to attempt to centralize in Washington the management of affairs that belong rightfully to the respective states is to create a system that cannot but destroy democracy among our people by betrayal of principles which are the fundamentals for the maintenance of government.

The centralization of power, whether in industry, commerce, education or the trades or professions or other factors entering into affairs of our everyday life amounts to this: that if we grant to an individual the power to make standard or be the sole authority to revise, abolish, or fix conditions under which the people of the future have to live, work and be educated, we set up an oligarchy which will create and foster bolshevism.

THE ENGLISH WORKMEN'S COMPENSATION ACTS PROLONG DISABILITY

The A. M. A. regular London correspondent under date of March 16, 1935, says:

The report of a committee appointed by the British Medical Association to consider the treatment of fractures has been reviewed in a previous letter. An appendix on "Nonmedical Factors of Prolonged Disability" was not included and, because of its importance, requires a special notice. While disclaiming that a purely medical committee can have an intimate acquaintance with all aspects of the fracture problem, the committee felt that some reference was necessary to the nonmedical factors that militate against return to work. The committee points out that the workmen's compensation acts in many cases play a powerful part in prolonging disability and delaying return to work and on occasion in converting the workman into a permanent invalid. The committee freely admits that the acts are humane and beneficial. That legislation in other countries has been based on them shows that the ideas conceived in this country are sound. But the acts contain no provision for the rehabilitation of the man after injury and place no liability on him to prove that he has sought and obtained efficient treatment, while the type of monetary benefits granted under the acts are often positively harmful to the man. Three methods are adopted by employers for insuring against the liabilities imposed on them by the workmen's compensation acts: (1) through insurance companies, (2) by

mutual associations of groups of employers, and (3) by individual employers. Under the first method the insurance company is not concerned with the man's recovery as such but with the settlement of his claim as speedily as possible. Measures such as those recommended by the committee to reduce the period of incapacity in general will not necessarily be welcomed by the companies, as they must eventually involve a reduction of revenue through lowering of premiums. On the other hand, the second and third methods have not this advantage. The economic advantage of the insurers is implicit in the recovery and ultimate welfare of the disabled man. For this reason mutual associations and self-insured employers often find it advisable to employ their own medical officers to supervise the injured workman. An admirable scheme, recognized under the compensation acts, is under the control of a board composed partly of employers and partly of workmen. It allows for the provision of unbiased medical referees whose opinion is final and is accepted without litigation by all parties. It also arranges for lump sum payments and pensions.

THE U. S. DEPARTMENT OF AGRICULTURE EXPANDS TO STUDY VITAMINS AND PHARMACOLOGY

Under date of July 13 the Department of Agriculture released the following data:

Two Doctors Nelson have been appointed as chiefs of the new divisions of the Food and Drug Administration, Dr. E. M. Nelson as chief of the Vitamin Division and Dr. Erwin E. Nelson as chief of the Pharmacological Division. The Department of Agriculture announced today that each is now assembling a staff taken in part from older units of the Department and in part recruited from specialists in the sciences involved in the work of the new divisions.

In announcing the creation of the new divisions W. G. Campbell, Chief of the Food and Drug Administration, emphasized the increasing importance of work in each of these fields and said that the work is so essential that it must be pushed, even though for the time being the required funds may have to be deducted from support of regulatory work. The Vitamin Division will check the claims and help establish standards for food and drugs for which claims of vitamin potency are made. The Food and Drug Administration has been doing some routine work of this sort, but it has been inadequate to meet the growing need.

The Pharmacological Division, in addition to more comprehensive testing of certain medicinal products, will pay particular attention to several relatively new fields of work—the testing and standardization of glandular preparations put on the market in recent years, investigations of the effect of poisons and impurities present in foods, and testing of the effects of new synthetic chemicals used in foods and medicines.

CLASS IN VITAMINS ORDERED BY WISCONSIN LEGISLATURE

A bill requiring that instruction in the vitamin content, food and health values of dairy foods be offered 15 minutes per week in grade schools and high schools throughout the state has been signed by Lieutenant-Governor O'Malley. The bill, introduced by Sen. Earl Leverich, Sparta, directs the schools to include this study in their curriculum and requires the University of Wisconsin to co-operate in the program.

SEEKING A PROPER CLASSIFICATION FOR VITAMINS

The A. M. A. regular London correspondent under date of June 15, 1935, under the heading "Vitamins and the British Pharmacopeia," says:

The pharmacopeia commission, which was appointed in 1933 for three years to collect material for the next edition, has reported that it has been actively engaged in preparing an addendum to the British pharmacopeia, publication of which is expected next year. The commission has formed a committee of experts to deal with the vitamins and their preparations. At a meeting of the General Medical Council, which received this report, Dr. H. G. Dain, chairman of the Insurance Acts Committee of the British Medical Association, said that he found difficulty in drawing a line between food and drugs, since the products that contained vitamins would in the ordinary way be foods. He thought that the public and the profession should be taught that vitamins could not be regarded as drugs, and that the government should take steps to see that common foods contained the vitamins that properly belonged to them. Sir Henry Dale replied that, although much vitamin research lay on the border line between therapeutics and nutrition,

the pharmacopeia did not aim at establishing standards of normal diet. Some vitamins had now been isolated in a chemically pure form. Apart from the need of them in normal diet, many patients would require vitamins to be given in the most concentrated form. It was the duty of the pharmacopeia to see that such potent remedies were standardized apart from any question of general policy.

THE EFFECT OF VITAMIN B ON FEMALE GENITAL ORGANS

J. Ueno, *Japanese Journal of Obstetrics and Gynecology,* 17: 388, 1934, says that in the deficiency disease of vitamin B the conceptive ability is depressed and some animals finally fall into sterility. But before the deficiency of the vitamin becomes intense, conception is possible, though various abnormal processes take place during the course of pregnancy, parturition and puerperium; for instance, anomalous hemorrhage of the pregnant uterus, intra-uterine absorption of fetuses, early interruption of pregnancy, weakened power of expulsion, and disturbance in the uterine involution. During the attack of the disease, the development of the fetuses is markedly hindered. In extreme cases some fetuses have been absorbed or macerated in the uterus and others have been delivered in stillbirth. Even if born alive, they are generally structurally weak and small in body length, and among the fetuses born from the same mothers some variance was revealed in their body weight and length.

Experimental Study on Effects of Vitamin B on Female Genital Organs: Part IV. Effects of Some Endocrines to Ovarian Hypofunction Due to Deficiency of Vitamin B: Part V. Effects of Deficiency Disease of Vitamin B on the Conceptive Ability, Pregnancy, Parturition and Puerperium.

DIAGNOSIS OF VITAMIN C SUBNUTRITION BY URINALYSIS

L. J. Harris and N. S. Ray, *Lancet,* London *I*: 71, 1935, observed that infants suffering from manifest scurvy or with a history of vitamin C underfeeding excrete less vitamin C in their urine (measured chemically) than do well nourished infants of the same age tested under the same conditions (on controlled diets low in vitamin C). The difference can be made more strikingly manifest by the administration of a large test dose of vitamin C: a marked peak results in the curve of the urinary excretion for the normal infants, but not for the "unsaturated," scorbutic or semiscorbutic infants. After cure the scorbutic infant behaves like a normal infant both in his output of vitamin C on ordinary diets (or controlled diets free from vitamin C) and in his response after the test dose. Observations on adults show that a low urinary output and a low response to test doses go parallel with a history of vitamin C underfeeding and with a state of vitamin C subnutrition as indicated by a lowered capillary resistance. The authors describe a technic that is being used to estimate the prevalence of hypovitaminosis C among certain sections of the community. The rarity of scurvy in breast-fed infants is explained by the finding that human milk contains from three to four times the amount of vitamin C found in cow's milk; part of the latter is also lost generally (1) by pasteurization, (2) during standing, (3) by further heating and (4) by dilution.

Diagnosis of Vitamin C Subnutrition by Urine Analysis: Note on Antiscorbutic Value of Human Milk. L. J. Harris and S. N. Ray.

RELATION OF VITAMIN B DEFICIENCY TO METABOLIC DISTURBANCES DURING PREGNANCY AND LACTATION

Doctors E. M. Tarr and Olga McNeile, Los Angeles, in American Journal of Gynecology, 29: 811, 1935, contend that a deficiency of vitamin B in the diet of pregnant and lactating women usually produces definite symptoms. Signs of demineralization are more pronounced in those women who obtain less than 50 per cent. of their total calories from protective foods. It was observed that test cases showed a much better blood picture than was true with the controls. Of the control group 4.5 per cent. were threatened with miscarriage. The test group escaped all such symptoms. More calm and better milk producers were found in the test group. Severe signs of gastric and intestinal atony were almost entirely absent in the test group, whereas these signs were encountered in more than 20 per cent. of the control group. Undoubtedly this was not purely coincidental. Previous views concerning some of the signs of vitamin B deficiency during pregnancy and lactation have been substantiated.

ECONOMY

She: "What are all those men doing in a circle with their heads together? Is it a football team?"

He: "No, my dear, just a bunch of Scotchmen lighting a cigarette."

INTRASPINAL (SUBARACHNOID) INJECTION OF ALCOHOL FOR PAIN ASSOCIATED WITH MALIGNANT CONDITIONS OF THE FEMALE GENITALIA

J. P. Greenhill and Herbert E. Schmitz, Chicago (*Journal A. M. A.*, Aug. 10, 1935), experimented with twenty-seven subarachnoid injections of alcohol in twenty-five women with advanced carcinoma of the genitalia. The authors recommend this procedure in all women who suffer from excruciating and persistent pain that is associated with genital carcinoma. This injection is simple to carry out, it entails very few risks, and it has brought relief to twenty-four out of twenty-five patients. Because it is simpler than any operative procedure and because the results are so satisfactory it is now being used in preference to pelvic sympathectomy, which was advocated two years ago for the same purpose. The authors will resort to sympathectomy in the cases in which alcohol injections fail. Until more is known about the late effects of 95 per cent alcohol on the spinal cord itself, it is best to restrict subarachnoid injections to patients in whom the malignant condition is far advanced.

SOME ROENTENOLOGIC STUDIES OF DYNAMICS OF THORAX

J. W. Pierson, Baltimore (*Journal A. M. A.*, Aug. 10, 1935), refers to three cases, of which one presented congenital absence of one lung and two complete traumatic atelectasis of an entire lung. The two outstanding features of these cases were the great size attained by the right lung and the ease with which it traversed the mediastinum. This was demonstrated at operation and later by bronchography. The cases of traumatic atelectasis of one lung are examples of true herniation of the lung and are not to be confused with the herniations that are sometimes produced in cases of therapeutic pneumothorax. The physical effects in the latter group are the result of high positive pressure on the side on which the pneumothorax has been induced. Consideration of the author's and of Rienhoff's cases shows that the same compensatory mechanism functions in the presence of diminished lung size, no matter what the primary cause. Several essentials are necessary in order to permit of the proper functioning of the processes of restitution. First, the lung must be capable of expansion. Certainly an overexpanded emphysematous lung is not able to respond to the influence of a negative intrathoracic pressure as readily as a lung in which the normal elasticity has been preserved. Second, the mediastinum must be patent. This factor is governed very largely, though not wholly, by the age of the patient. The reason for this is quite obvious, because advancing age causes fixation of the mediastinal structures. Infection in operative cases plays an important role in a negative sense. If present it also causes fixation of the mediastinum and it renders the permanent closure of the bronchus more difficult. The results obtained in the operative cases would seem to justify the technic, which is designed to utilize the compensatory mechanism of the thorax. Furthermore, preservation of the thoracic cage provides protection for underlying structures, aids in early restoration of the normal physiologic functioning of the thorax, and avoids the necessity of a deforming operation.

FACIAL ERYSIPELAS: EVALUATION AND COMPARISON OF SPECIFIC ANTISERUM AND ULTRAVIOLET THERAPY

H. Jerry Lavender and Leon Goldman, Cincinnati (*Journal A. M. A.*, Aug. 10, 1935), observed ninety cases of adult facial erysipelas from 1933 through the spring of 1935. Thirty-two of these cases were treated with specific antiserums with an average of 4.8 injections. Twenty-six patients were given intensive ultraviolet therapy with an average of 18.8 erythema doses at a treatment and an average of three treatments for each patient. Thirty-two cases were used as controls with simple wet dressings. The seasonal incidence, the lapse of time before the onset of treatment, the general condition or debilitation of the patient and previous treatment are a few of the matters that play a marked role in the evaluation of the therapy instituted. Ultraviolet therapy is equal if not superior to serum therapy. The end results, governed by the quickker response to treatment and the fewer complications, make ultraviolet therapy for facial erysipelas distinctive and the method of choice.

"FRIENDSHIP"

Friendship—Aristotle defines: As one soul abiding in two bodies—and the world has not changed very greatly since his time; all of the fruits of friendship spring from the roots of influence—and influence in the main is the impress of our real character on the lives of others.

The influence of a doctor—not only among his colleagues and patients; but generally among his fellow men is more far reaching than most of us know.

Let us not become careless or neglectful of our opportunities.

HEMATURIA AS A COMPLICATION OF PREGNANCY

Harold L. Morris, Detroit (*Journal A. M. A.*, Aug. 10, 1935), found that in a routine study of 154 urologic consultations because of urinary tract disturbance during pregnancy, hematuria occurred in thirty cases. Further study of these thirty patients revealed cystitis in all cases; pyelitis in twenty-two, of which twenty were bilateral and two were unilateral; hydronephrosis in ten, two of which were bilateral and eight unilateral; pyonephrosis of the right kidney in two cases, and ptosis in nine cases, four being bilateral, four right and one left. Megaloureter occurred in eleven cases, of which four were bilateral, six right and one left. Ureteral calculus of the right ureter was present in two cases, and ureteritis in two cases, one bilateral and one of the right ureter. Hematuria is a grave complication of pregnancy, and in all instances of hematuria occurring during pregnancy the very least the patient is entitled to is a thorough investigation by a competent urologist.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
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With the adjournment of Congress, without any legislation affecting the medical profession directly, we should not be lulled into a feeling of false security. The Social Security measure just passed was merely the opening wedge of proposed legislation involving the care of the unfortunate groups which have looked with increasing longing at the federal government the past two years for aid and assistance. In this longing, they have been encouraged by the uplifters, who realize that there is no better method of building up efficient political machines than by making a group or groups dependent upon the government and its representatives for their daily necessities of life. And included in this list of necessities of life, according to their opinion, medical care comes high in its position.

Should anyone question the ultimate desire of the reformers, he need only to read the current magazines and find the increasing volume of articles, some written by out and out propagandists for reform as well as others written in more subtle form by alleged unbiased observers. A recent article on the Editorial Page of *Colliers* came to our attention. Let me quote a few sentences from the article. "The Social Security Measure went through Congress not as a partisan measure. No important opposition appeared." "This Committee (the Committee on Social Security, appointed by the President) employed experts and made a thoughtful investigation into the broad subject of insecurity in our economic life." "The actual Social Security measure is not extravagant, but it does mark an immense step forward." "No one, least of all its advocates, imagine that the Social Security measure is a complete answer to economic security. It is, however, a brave and reasonable step in advance. On the foundations of actual experience, better systems can be devised." Appearing in such an influential periodical as *Colliers,* this editorial will have great influence. To one who reads it analytically there is both the desire for further reforms as well as the promise that this is but the beginning of further legislation in the future. Unquestionably some of their statements are debatable, and it is unfortunate that such propaganda is being pushed by them. Surely we must have no illusions as to the necessity of continued vigilance and opposition to these changes by organized medicine.

The Committee on Medical Economics of the Illinois State Medical Society expects to hold a meeting early in September to outline the exact nature of the work of the year. There is no question but there is an ever increasing interest on this subject by the medical profession of the state. This is evidenced by the increased request for speakers on medical economic subjects. We hope to have such speakers available in all parts of the state during this coming year and trust that every County Society will include in their program a talk on this subject. Miss McArthur of the Educational Committee will have a list of available speakers as soon as the same is completed and she will be glad to assist in any way. Also we hope she will be able to furnish speakers for lay groups, which are interested in the subject and a live physician in every community can arrange for several talks before groups in his community. This is the greatest opportunity we have to spread information favorable to the medical profession and no chance should be lost. But three or four men cannot do it. It is work for every member of the society and will pay great dividends in years to come.

This month the chief article of this column is by the Chairman of the Council of the Illinois State Medical Society, Dr. I. H. Neece of Decatur. His record of accomplishments for organized medicine the past twelve years he has served as Councilor from his district needs no comment. His opinions and ideas are worthy of attention. We hope that you will read the article and thereby get a better view of the magnitude of the work before us.

We hope to continue the plan of having articles by some member of this committee or an officer of the society each month, in an effort to get the different ideas of the many presented in a way that the Chairman of the Committee is unable to do.

Continue to write in your question on economic problems and we will refer them to the proper individual for authentic replies.

E. S. Hamilton, M. D.,
Chairman of the Committee on Medical Economics.

CHANGING MEDICAL TRENDS

The structure of social relationships is in a state of revolution. Economic depression has produced innumerable forces that seek change in the existing order of things. No business or profession has escaped the effects of this revolution. Medicine in particular is being stirred in this cauldron of witches. What the potion shall be is to be determined by whatever leadership gains the ascendency as well as by the fundamental structure of the art itself. That grave forces are at large, both without and within organized medicine, endeavoring to change not only the structure of social activity in man's state of health, but also in his ill health, is evident. Whatever plan is finally adopted concerning how a physician shall practice medicine will determine the usefulness of the doctor of the future.

That we, the organized unit of medicine in Illinois, should have some part in determining this final plan for the practice of medicine is absolutely necessary. That other forces or leadership are attempting to change the order and manner of our practice cannot now be disputed. Whether we accept this lay leadership in telling us how and for what, when and on whom we shall ply the art of our science rests with the membership of the Illinois State Medical Society in so far as the commonwealth of Illinois is concerned. That sinister forces are active in our national and state governments which have for their purpose, it seems to me, a limitation of the present status of the members of our profession there can be no doubt. These forces profess interest in our patients, indict us for our inability to meet what they say is the problem of public and private health. Vast sums of money endorse these critics and on that account they are permitted to make their charges that the doctor's fee is too much and that the doctor does not meet his responsibility to his patient. In fact, indirectly, they infer we do not know our business in taking care of the sick. They charge, properly, that it costs too much to be sick. To that part of their doctrine we all heartily subscribe. But they imply that if the doctor of tomorrow was paid less the cost of sickness would be in great part relieved. They can cite a few instances when despicable overcharges have been made by doctors. So they indirectly deduce that all doctors overcharge for their services. Hence, all men who practice medicine should be thwarted by law to become social service hirelings of the state and subject to the dictates of the executive of the state or nation for a compensation the layman shall dictate. In fact, these forces want to socialize the doctor although loud in their cry against socialization of business. They appear to be advocates of communism for the doctors but not for themselves. On this basis we indict the logic of their position and the sincerity of their purpose.

To meet the necessary high cost of sickness we now have insurance plans being formulated. For a small yearly premium the patient is to receive care for his existing sickness. The insurer contracts to furnish a doctor and a hospital bed but no nurse. The doctor will become the insurance employee. Whatever profit shall evolve shall compensate the director of the insurance company who argues that he takes the risk and therefore the gain. The main fault with the plan is that the doctor is not paid a salary commensurate with the duty he is supposed to perform. Hence, the doctor who has the ability to properly service the insuree's necessity is not economically available. Often, a less capable physician is employed. This is fundamentally and ethically wrong. We subscribe to the fundamental principle that the sick man shall have the privilege of the employment of the very best doctor for the purpose of healing his illness. That the patient does not always do so does not invalidate the logic of this established principle. We believe such insurance plans as are now available to meet the poor man's sick problem are thus opposed to the best interest of the patient as well as the doctor.

So much for the proposed plans to take the care of the sick out of the hands of the trained physician. If we are sure of our position we

need fear no such mechanisms. We can so oppose their proponents that they cannot succeed in their establishment. We should always do so on the basis of the best interest of the patient. This is the position we must steadfastly hold.

Among the other problems which the practicing physicians must confront is the free clinic service, which has quadrupled in a decade. Physicians of medicine now treat gratis 500,000 of the Nation's daily sick list of 1,250,000.

Pay clinics have had a recent mushroom growth. They were designed for downtrodden white-collar workers and to operate on a system of small fees. Doctors are expected to give their services free while other employees are paid.

Competitors have been chiseling fat slices from the national medical dollar: Osteopaths, $42,000,000 a year; chiropractics, $63,000,000, and livings for 3,000 naturopaths and 10,000 Christian Science practitioners.

There never was any excuse for the chiropractor or the oseteopath and they never should have been allowed by the medical profession to assume the proportions they have attained or to have become powerful enough to have or attempt to have separate boards of licensure. Illinois, thanks to the efficient Legislative Committee, has come through with another 100 per cent. record. The medical profession should have absorbed the best these cults had and taught and used it. They should not, even now, be allowed to usurp the medical doctors' sphere by prescribing drugs as a great majority do. Possibly, had the medical profession been alive to its own interests, the various types of healing such as osteopathy, chiropractic and naturopaths would never have had the following they now command.

Lesser bad breaks for the family doctor's pocketbook have included free hospitalization of veterans and mass production contract systems of medicine fostered by insurance companies and compensation clinic work.

I am told that now highway filling stations are being recommended as first aid emergency stations.

In spite of shrinking incomes among its members, the profession has officially denied that the system of private practice is threatened. Socialization of medicine, which might insure practitioners bread and butter in the form of salaries, will ultimately undermine medical ethics.

There has never been a time when the human race, the nations of the world and our profession in particular needed intelligent, careful, thoughtful common sense leadership as it does today. Therein lies a challenge to all of us, to bring forth the best, the most substantial traits which we possess and apply them to our future problems which are just being opened up by our present situation.

I. H. Neece, M. D.,
Chairman of Council.

Correspondence

"THE DOCTOR'S BILL," BY HUGH CABOT

Chicago, July 15, 1935.

To *The Editor:* In this book of three hundred pages Dr. Cabot has, on the whole, presented the many aspects of the current medical situation quite simply and sanely. The book is evidently intended for popular reading and probably on this account is more cursory and discursive than the author feels. From his position with the Mayo Clinic, Dr. Cabot's bias for Rex Brown and the Group practice of the Majority Report is understandable as a personal reaction.

He remarks somewhere "that he cannot conceive how physicians can estimate the extent of sickness among patients whom they do not see." It is more likely that the great majority of sick people outside of the Cults get to the doctor than that any who are really ill are neglected. No one knows better than Dr. Cabot than in a large percentage of cases persons may feel either sick or well and yet be quite the contrary in reality, and in these cases it is *only* the doctor who can differentiate them.

The accusation that great numbers of people suffer from lack of medical care is made by Social Theorists and Salaried Altruists for selfish motives and in Illinois at least and in the United States generally, according to accepted statistics, the statement is not substantiated.

Charles B. Reed, M. D.

NEW MATERIAL PLANNED FOR COUNTY MEDICAL SOCIETIES

The Scientific Service Committee reports a very satisfying and encouraging response to a notice recently sent to physicians who had previously consented to address scientific groups and county medical societies.

No doubt there are other members of the

Illinois State Medical Society, not receiving this letter, who will wish to take part in these programs. They will please so advise the Chairman of the Committee, listing the topic or topics on which they are prepared to talk.

Robert S. Berghoff, M. D., Chairman,
30 North Michigan Avenue, Chicago.

INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

The International Assembly of the Inter-State Postgraduate Medical Association of North America will be held in the beautiful Masonic Temple, Detroit, Michigan, October 14, 15, 16, 17 and 18, 1935, with pre-assembly clinics on Saturday, October 12 and post-assembly clinics Saturday, October 19, in the Detroit Hospitals.

The Association through its officers and members of the program committee extends a very cordial invitation to all physicians in good standing in their State and Provincial Medical Societies to attend the Assembly. An unusual clinical and didactic program including all branches of medicine and surgery and the specialties has been arranged by the program committee.

In cooperation with the Wayne County Medical Society and the Michigan State Medical Society and with the active support of the Detroit Convention and Tourist Bureau and the Detroit Board of Commerce, a most excellent opportunity for an intensive week of postgraduate medical instruction is offered by a very large group of acknowledged leaders in the profession.

With a great deal of pride and satisfaction, we call your attention to the list of distinguished teachers and clinicians who will take part on the program which appears on page 15 of the advertising section of this journal.

Registration fee of $5.00 admits all members of the profession in good standing.

Dr. Charles H. Mayo, President, Rochester, Minn.

Dr. George Crile, Chairman, Program Committee, Cleveland, Ohio.

Dr. William B. Peck, Managing-Director, Freeport, Ill.

INTERNATIONAL ASSEMBLY OF THE INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

Detroit, Michigan

October 14, 15, 16, 17 and 18, 1935

Monday, October 14

8 A. M.

Diagnostic Clinic: "Anemia." Dr. Cyrus C. Sturgis, Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

Diagnostic Clinic: "Peptic Ulcer." Dr. Donald C. Balfour, Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minn.

Diagnostic Clinic: "Types of Oedema and their Treatment." Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physics, Harvard University Medical School, Boston, Mass.

Intermission for Review of Exhibits

Diagnostic Clinic: "Factors Influencing the Healing of Fractures." Dr. William Darrach, Dean Emeritus and Professor of Clinical Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Address: "Pneumonias of Childhood." Dr. Charles H. Smith, Professor of Pediatrics, University and Bellevue Hospital Medical College, New York, N. Y.

Noon Intermission

Diagnostic Clinic: "Headache." Dr. Elliott C. Cutler, Moseley Professor of Surgery, Harvard University Medical School, Boston, Mass.

Address: "Plastic Operations on the Lower Urinary Tract for Congenital Deformities." Dr. Hugh H. Young, Professor of Urology, Johns Hopkins University School of Medicine and Director of the Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Md.

Address: "Lead Poisoning in Children." Dr. Harold B. Cushing, Clinical Professor of Pediatrics, McGill University Faculty of Medicine, Montreal, Canada.

Intermission for Review of Exhibits

Address: "Hyperplastic Tuberculosis of the Large Bowel, Its Diagnosis, Treatment and Prognosis." Dr. Fred W. Rankin, Lexington, Ky.

Address: "Diagnosis and Treatment of Diseases of the Esophagus." Dr. Gabriel Tucker, Professor of Bronchoscopy and Laryngological Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

Address: "Indications for and Advantages of Vaginal Hysterectomy." Dr. Alexander W. Blain, Professor of Surgery, Wayne University College of Medicine, Detroit, Mich.

Dinner Intermission

Address: "Thoracic Surgery." Dr. George J. Heuer, Professor of Surgery, Cornell University Medical College, New York, N. Y.

Address: "A Critical Estimate of the Value of

Laboratory Procedures in Disorders of Metabolism." Dr. John P. Peters, John Slade Ely Professor of Medicine, Yale University School of Medicine, New Haven, Conn.

Address: "Tendon Transplantation in the Lower Extremity." Dr. Frank R. Ober, Assistant Dean, Harvard Medical School, Course for Graduates; Clinical Professor Orthopedic Surgery, Harvard University Medical School, Boston, Mass.

Address: "Hyperthyroidism in Patients Over Fifty Years of Age." Dr. Charles A. Elliott, Professor of Medicine, Northwestern University Medical School, Chicago, Ill.

Tuesday, October 15

8 A. M.

Diagnostic Clinic: "Tuberculosis." Dr. James A. Miller, Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons, New York, N. Y.

Diagnostic Clinic: "The Prostate Gland." Dr. William E. Lower, Cleveland Clinic, Cleveland, O.

Diagnostic Clinic: "Chronic Arthritis." Dr. Russell L. Cecil, Professor of Clinical Medicine, Cornell University Medical College; Professor of Internal Medicine, New York Polyclinic Medical School and Hospital, New York, N. Y.

Intermission for Review of Exhibits

Diagnostic Clinic: "Diverticulitis and Diverticulosis." Dr. John F. Erdmann, Attending Surgeon of the New York Post Graduate Hospital and Medical School, New York, N. Y.

Address: "The Present Status of Bronchoscopy in Bronchial Asthma." Dr. Louis H. Clerf, Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College, Philadelphia, Pa.

Noon Intermission

Diagnostic Clinic: "Diseases of the Skin in Infancy and Childhood." Dr. Howard Fox, Professor of Dermatology and Syphilology, University and Bellevue Hospital Medical College, New York, N. Y.

Address: "Diphtheria Prevention, Methods and Results." Dr. John G. Fitzgerald, Dean and Professor of Hygiene and Preventive Medicine, University of Toronto Faculty of Medicine, Toronto, Canada.

Address: "Empyema." Dr. Charles R. Austrian, Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission for Review of Exhibits

Address: "Diagnosis and Treatment of Surgical Lesions of the Spinal Cord." Dr. Alfred W. Adson, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine, Rochester, Minn.

Address: "The Differential Diagnosis of the Major Psychoses." Dr. Clarence B. Farrar, Professor of Psychiatry, University of Toronto Faculty of Medicine, Toronto, Canada.

Address: "Interrelationship of Mother and Fetus." Dr. Fred L. Adair, Professor of Obstetrics and Gynecology, The School of Medicine of the Division of Biological Sciences, University of Chicago, Chicago, Ill.

Dinner Intermission

7 P. M.

Address: "The Surgical Treatment of Cranio-Cerebral Injuries." Dr. Loyal Davis, Professor of Surgery, Northwestern University Medical School, Chicago, Ill.

Address: "Conceptions of Diabetes as Modified by Recent Studies of the Hypophysis and the Adrenals." Dr. David P. Barr, Busch Professor of Medicine, Washington University School of Medicine, St. Louis, Mo.

Address: "The Water Balance of the Surgical Patient." Dr. Frederick A. Coller, Professor of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

Address: "The Importance of Dietetics in Modern Medicine." Dr. Robert W. Keeton, Professor of Medicine and Head of the Department, University of Illinois College of Medicine, Chicago, Ill.

Wednesday, October 16

8 A. M.

Diagnostic Clinic: "Deficiency Diseases of Children." Dr. Alan G. Brown, Associate Professor of Medicine (Pediatrics), University of Toronto Faculty of Medicine, Toronto, Canada.

Diagnostic Clinic: "Infections of the Urinary Tract." Dr. Hugh Cabot, Professor of Surgery, University of Minnesota Graduate School of Medicine and Consulting Surgeon at the Mayo Clinic, Rochester, Minn.

Diagnostic Clinic: "The Gallbladder." Dr. David Riesman, Professor of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Intermission for Review of Exhibits

Diagnostic Clinic: "Complications of Late Pregnancy." Dr. John R. Fraser, Professor of Obstetrics and Gynecology, McGill University Faculty of Medicine, Montreal, Canada.

Address: "The Present Status of Our Knowledge of the Suprarenal Cortical Hormone." Dr. George A. Harrop, Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

Noon Intermission

Diagnostic Clinic: "Benign Tumors of the Breast." Dr. Edward J. Klopp, Professor of Surgery, Jefferson Medical College, Philadelphia, Pa.

Address: "Influence of the Anesthetic on the Risk of Operation." Dr. George P. Muller, Professor of Clinical Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

Address: "Fracture of the Neck of the Femur." Dr. Dallas B. Phemister, Professor of Surgery, The School of Medicine of the Division of the Biological Sciences, University of Chicago, Chicago, Ill.

Intermission for Review of Exhibits

Address: "Acute Appendicitis in the Extremes of Life." Dr. Urban Maes, Professor of Surgery,

Louisiana State University Medical Center, New Orleans, La.

Address: "Studies in Abdominal Pain." Dr. Frederick J. Kalteyer, Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, Pa.

Address: "Traumatic Subdural Hematoma." Dr. William James Gardner, Cleveland Clinic, Cleveland, Ohio.

ASSEMBLY DINNER

Twentieth Anniversary Ceremony.

Address, The Honorable Herbert A. Bruce, Lieutenant Governor of Ontario, Toronto, Ontario, Canada.

Address, Rear-Admiral Cary T. Grayson, Chairman, The American Red Cross, Washington, D. C.

Thursday, October 17

8 A. M.

Diagnostic Clinic: "Psychoses Associated with Organic Brain Diseases." Dr. Louis J. Karnosh, Assistant Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine, Cleveland, Ohio.

Diagnostic Clinic: "Differential Diagnosis Between Gastric and Duodenal Ulcer and Gall Stones." Dr. William D. Haggard, Professor of Clinical Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.

Diagnostic Clinic: "Ménière's disease." Dr. Walter E. Dandy, Adjunct Professor of Neurological Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission for Review of Exhibits

Diagnostic Clinic: "Cardiac Diseases." Dr. Harlow Brooks, Emeritus Professor of Clinical Medicine, New York University and Bellevue Hospital Medical College, New York, N. Y.

Address: "Treatment of Hyperinsulinism." Dr. E. Starr Judd, Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minn.

Noon Intermission

Diagnostic Clinic: "Conditions Producing Splenomegaly." Dr. Campbell P. Howard, Professor of Medicine, McGill University Faculty of Medicine, Montreal, Canada.

Diagnostic Clinic: "Obstructive Jaundice." Dr. Waltman Walters, Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Address: "Low Back Disability." Dr. Wallace S. Duncan, Cleveland, Ohio.

Address (Subject to be announced). Dr. Charles H. Mayo, Rochester, Minn.

Intermission for Review of Exhibits

Address: "Trigeminal Neuralgia." Dr. Charles H. Frazier, John Rhea Barton, Professor of Surgery, University of Pennsylvania School of Medicine and Professor of Neurologic Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

Address: "Bacterial Endocarditis." Dr. Ralph A. Kinsella, Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis, Mo.

Address: "The Treatment of Diseases of the Nasal Sinuses in Infants and Young Children." Dr. Lee W. Dean, Professor of Otolaryngology, Washington University School of Medicine, St. Louis, Mo.

Dinner Intermission

Address: "Diseases of the Thyroid Gland." Dr. James H. Means, Jackson Professor of Clinical Medicine, Harvard University Medical School, Boston, Mass.

Address: "Agranulocytosis." Dr. Russell L. Haden, Chief of the Medical Division, Cleveland Clinic, Cleveland, Ohio.

Address: "A Decade's Advance in Ophthalmology." The Joseph Schneider Foundation Presentation. Dr. William H. Wilmer, Professor Emeritus of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, Md.

Address: "Diagnosis and Treatment of Cancer of the Lip, Mouth and Throat." Dr. Arthur C. Christie, Professor of Clinical Radiology, Georgetown University Medical School, Washington, D. C.

Friday, October 18

8 A. M.

Diagnostic Clinic: "Traumatic Surgery of the Knee." Dr. John J. Moorhead, Professor of Clinical Surgery, New York Post Graduate Medical School, New York, N. Y.

Diagnostic Clinic: "Diabetes." Dr. Elliott P. Joslin, Harvard University Medical School, Boston, Mass.

Diagnostic Clinic: "Malignant Tumors of the Breast." Dr. Dean D. Lewis, Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission for Review of Exhibits

Diagnostic Clinic: "Hypertension." Dr. George Crile, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic: "Deficiency Diseases in Adults." Dr. William Gerry Morgan, Dean and Professor of Gastro-Enterology, Georgetown University School of Medicine, Washington, D. C.

Noon Intermission

Diagnostic Clinic: "Obstructive Lesions of the Bladder." Dr. Joseph F. McCarthy, Professor of Clinical Urology, Executive Officer of the Department of Urology, New York Post Graduate Medical School, Columbia University, New York, N. Y.

Address: "The Stomach's Response to the Menu." Dr. T. Wingate Todd, Henry Willson Payne, Professor of Anatomy, Western Reserve University School of Medicine, Cleveland, Ohio.

Address: "Further Advances in Our Knowledge of the Thymus and Pineal Glands." Dr. Leonard G. Rowntree, Director, Philadelphia Institute for Medical Research, Philadelphia, Pa.

Intermission for Review of Exhibits

Address: "The Diagnosis and Treatment of Surgical Lesions of the Pancreas." Dr. Irvin Abell, Clinical Professor of Surgery, University of Louisville School of Medicine, Louisville, Ky.

Address: "The Diagnosis and Management of the Septic Appendix." Dr. W. Wayne Babcock, Professor of Surgery and Clinical Surgery, Temple University School of Medicine, Philadelphia, Pa.

Address: "Surgical Treatment of Gall Stones." Dr. Frank H. Lahey, Director of Surgery in the Lahey Clinic; Surgeon to the New England Baptist Hospital and New England Deaconess Hospital, Boston, Mass.

AN INVITATION FROM THE INDIANA STATE MEDICAL SOCIETY

All members of the Illinois State Medical Society are invited to attend the annual session of the Indiana State Medical Association, to be held in Gary, October 8, 9 and 10, with headquarters at the Hotel Gary.

A list of the out-of-state speakers is as follows:

Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School, Chicago.

Ralph M. Waters, M. D., Professor of Anesthesia, University of Wisconsin Medical School.

Norman F. Miller, M. D., Professor of Obstetrics, University of Michigan Medical School.

Louis J. Karnosh, M. D., Asst. Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine.

A. L. Schwartz, M. D., Cincinnati.

J. Tate Mason, M. D., President-elect, American Medical Association.

Virgil S. Counsellor, M. D., Asst. Professor of Surgery, University of Minnesota, Graduate School of Medicine.

Sanford R. Gifford, M. D., Professor of Ophthalmology, Northwestern University Medical School.

Elexious Thompson Bell, M. D., Professor of Pathology, University of Minnesota Medical School.

William F. Braasch, M. D., Professor of Urology, University of Minnesota, Graduate School of Medicine.

Louis George Herrmann, M. D., Asst. Professor of Surgery, University of Cincinnati College of Medicine, Cincinnati.

Emmet F. Horine, M. D., Associate Clinical Professor of Medicine, University of Louisville School of Medicine.

MISSISSIPPI VALLEY MEDICAL SOCIETY MEETING

The first annual meeting of the newly formed Mississippi Valley Medical Society will be held at Quincy, Ill., October 2-3-4. The meeting and commercial exhibit will be held in the new and thoroughly modern Lincoln-Douglas Hotel. There will be morning, afternoon and evening sessions of a most practical character. The entire program is arranged to especially appeal to the general practitioner.

Among the eminent clinicians on the program are:

Isaac A. Abt, M. D., Prof. of Pediatrics, Northwestern University School of Medicine.

Fred H. Albee, M. D., Prof. of Orthopedic Surgery, New York Post-Graduate Medical School and Hospital.

W. Wayne Babcock, M. D., Prof. of Surgery, Temple University School of Medicine.

Hugh Cabot, M. D., Prof. of Surgery, University of Minnesota Graduate School of Medicine.

Arthur C. Ernstene, M. D., Cardiologist, Cleveland Clinic.

Frederick A. Figi, M. D., Assoc. Prof. of Laryngology, University of Minnesota Graduate School of Medicine.

Thomas E. Jones, M. D., Gynecologist, Cleveland Clinic.

Wm. C. MacCarty, M. D., Prof. of Pathology, University of Minnesota Graduate School of Medicine.

Albert Soiland, M. D., Chairman, Malignancy Board, California Hospital of Los Angeles.

These men will each give two or three practical lectures or clinical demonstrations and will be assisted by 27 specialists from Illinois, Missouri and Iowa who will conduct a clinical lecture course. There will be a total of over 50 lectures and demonstrations for the three day session. All ethical physicians are cordially invited to attend the meeting and a detailed program may be obtained from Harold Swanberg, M. D., Sec.-Treas., 211-224 W. C. U. Bldg., Quincy, Illinois.

ANNUAL CONVENTION OF THE ASSOCIATION OF MILITARY SURGEONS

The Association of Military Surgeons of the United States is to hold its 43rd Annual Convention at the Waldorf Astoria Hotel, New York City, October 3, 4 and 5. An excellent program—offering discussions by outstanding men of the country, on the latest scientific phases of Medicine, Surgery, Hygiene and Hospital methods will be presented. In addition a large number of exhibits by leading medical and surgical supply houses and various Government agencies will be on display.

The Association extends to you and the members of your Society a cordial invitation to attend all meetings.

EXTENSION EDUCATION IN PHYSICAL THERAPY

One of the aims of the Council on Physical Therapy of the American Medical Association is to promote extension education in physical therapy.

The Committee on Education of the Council believes that one of the best ways of extending postgraduate instruction in physical therapy is to arrange for practical talks to be given before state, county or other medical societies. Experience, especially in New York and Pennsylvania, has shown that such programs are eagerly received by the profession.

The Council is prepared to assist medical societies by furnishing general advice as to programs and by suggesting qualified personnel.

The following topics are offered as being of interest to the general practitioner:

The Present Status of Physical Therapy.
Physical Therapy in General Practice.
Body Mechanics and Posture Training.
Massage—Indications and Effects.
Pathological Conditions Helped by Physical Therapy.
Therapeutic Exercise.
Radiation Therapy.
Hydrotherapy.
Fever Therapy.
Diathermy, Medical and Surgical, Including Short Wave.

Motion pictures on the following subjects are available for loan:

Massage—Technic.
Graduated Active Motion.
Occupational Therapy.
Effects of Heat and Cold on Blood Circulation.
Effects of Massage on Blood Circulation.

In addition, exhibits on physical therapy can be arranged in conjunction with the Committee on Scientific Exhibit, available on request.

Anyone desiring help in program planning or loans of films or exhibits is advised to write the Secretary, Council on Physical Therapy, A. M. A., 535 North Dearborn Street, Chicago, Illinois.

AMERICAN PUBLIC HEALTH ASSOCIATION CONVENTION

Leaders of public health and preventive medicine from every state of the union and from several foreign countries are to be at hand for the sixty-fourth annual convention of the American Public Health Association to be held in Milwaukee, Wisconsin, from Oct. 7 to 10.

Workers in all fields of public health, medical men, nurses, specialists in research and others in allied activities are to be among the 3,000 delegates expected at the convention.

Important developments of the year in preventive medicine, in the extension of public health work and in the constant war on contagious disease will be unfolded at the gathering. The convention has come to be the place at which first announcement is made of scientific advances in public health and disease prevention.

Simultaneous with the association's sessions, ten other closely related organizations are to convene. They are the Association of Dairy, Food and Drug Officials, American Association of School Physicians, Association of Women in Public Health, Conference of State Sanitary Engineers, Conference of State Laboratory Directors, Conference of Wisconsin Health Officers, State Registration Executives and State Directors of Public Health Nursing, International Society of Medical Officers of Health, and National Committee of Health Council Executives.

Over 400 papers are to be presented, dealing with such widely varied subjects as mental hygiene, diphtheria and scarlet fever immunization, poison in food, public sanitation, treatment of sewage and polluted waterways, public health engineering, planned milk control, laboratory studies with toxins and vaccines, tuberculosis, milk-borne disease, water purification, new methods in reporting vital statistics, industrial hygiene, food and nutrition.

Sessions of the association itself are to be divided among its ten constituent sections—health officers, laboratory, vital statistics, public health engineering, industrial hygiene, food and nutrition, child hygiene, public health education, public health nursing and epidemiology.

There will be authoritative presentations on amebic dysentery, hemolytic streptococci, whooping cough, gonococcal infection, tuberculosis and undulant fever. A large number of papers are to be presented on filterable viruses, and on prophylactic and therapeutic vaccination. Recent progress in biological products, and research accomplishments of the year in the milk and dairy field have also been assembled for the program.

Among the outstanding physicians and health leaders who will speak at the convention are: Dr. E. L. Bishop, president of the association and director of health of the Tennessee Valley Authority; Dr. Walter H. Brown, president-elect of the association and professor of hygiene at Stanford university in Palo Alto, Cal.; Dr. Herman N. Bundesen, president, board of health, Chicago; Dr. W. G. Campbell, chief of the United States food and drug administration, Washington; Dr. A. J. Carlson, professor of physiology, University of Chicago.

Others include: Dr. Haven Emerson, professor of public health practice, Columbia university; Dr. John A. Ferrell, associate director, International health division, Rockefeller foundation, New York; Dr. Morris Fishbein, editor, Journal of the American Medical association; Dr. Grant Fleming, professor of public health, McGill university, Montreal; Dr. Iago Galdston, executive secretary, Medical Information bureau, New York; Dr. John P. Koehler, Milwaukee health commissioner; Dr. Carl S. Pederson, chief in research, Agricultural Experiment Station, Cornell university. Health commissioners of most large cities and research men on the staff of foundations and major industries are also on the program.

This great congress, which has an enviable record of scientific contributions, is designed to appeal to members of the public health and medical professions alike. Headquarters are to be at the Milwaukee Auditorium. Scientific and educational exhibits will be spread through one hall of this building. Entertainment and social events are also planned for the convention.

DINITROPHENOL AND CATARACT

In this issue of The Journal appear reports of several cases in which cataract seems to have occurred almost in the form of a malignant development in persons who had been taking dinitrophenol for long periods of time. The coincidence is of interest regardless of whether or not it may be established that the disturbance arose because of the dinitrophenol or because of some other undetected cause. It should, of course, be borne in mind that dinitrophenol has not been standardized chemically. The possible occurrence of toxic

contaminants in preparations of dinitrophenol must be considered. The possibility also exists that the cataracts may have resulted from associated malnutrition and an unbalanced diet, which are in many instances a part of the program of those who attempt rapid reduction of weight by the use of dinitrophenol or other methods. The Journal has warned its readers repeatedly against the dangers of uncontrolled use of new preparations of this type. The incident here recited serves as a further warning against use of these products until the actual merits and dangers may be more definitely determined. The report of the Council on Pharmacy and Chemistry rejecting dinitrophenol[2] for inclusion in New and Nonofficial Remedies, published last week, further emphasizes the hazards of the use of dinitrophenol and related substances.—*Jour. A. M. A.*, July 13, 1935.

1. Horner, W. D.; Jones, R. B., and Boardman, W. W.: Cataracts Following the Use of Dinitrophenol, this issue, P. 108. Boardman, W. W.; Rapidly Developing Cataract After Dinitrophenol, p. 108.

2. Dinitrophenol Not Acceptable for N. N. R., Report of the Council on Pharmacy and Chemistry, J. A. M. A., 105: 31, 1935.

THOMAS McCRAE

The last of the Guelph McCraes! For, of the two boys of Colonel David McCrae, Tom left no issue and John never married. A great pity! It was a stock that would ever bear fine fruit. Tom's father, in 1917, at the age of seventy, recruited and trained in Guelph, and led overseas to England, a field battery; and was sore tried when he was not allowed, by reason of his age, to lead his men on to France and into action. The end did not crown his work. The mother of Tom and John, Janet Eckford, was a rare woman, (though not so rare in Scotland); one who was on the same intellectual level as her men-folk, perhaps above them (though not John) in humour and kindliness. And where shall we find in this world a thing more good and delectable! ((How often did John quote to the writer the witty parts of her letters!) And then the two sons, Tom and John, both of whom attained high eminence in the practice and in the teaching of Medicine. In the fundamentals,—clear-eyed honesty, great industry, high-thinking, love of learning, intolerance of meanness, a profound sense of religion in its deep and tender meaning—the two were alike. On the lighter side, the side of good-fellowship, John had the easier and surer touch. Of him Lord Grey said, on the occasion of that well-known trip from Winnipeg by Hudson's Bay, Labrador, Nova Scotia, not forgetting Orwell, in P. E. I., and so round to Montreal—"Yes, McCrae was with us. We travelled 3,000 miles, and McCrae had a story for every mile." But Tom was graver, more serious, though he also was full of quiet humour. He was a slave to duty—a willing slave. It would be hard to find a man who failed less often in doing his job to the last tittle. And what was his job? The study of books, the care of patients, the teaching of students, the recording of his own knowledge as he gained it; and, finally, to come to the particular, the collaboration with his great Chief in that *magnum opus*, the Osler-McCrae "Modern Medicine." In this last, on which he did a very large share of the editorial work, besides contributing the chapters on Typhoid Fever and on Arthritis, and also in his admirable revision of the later editions of Osler's Text-Book, after Osler's death, we see his real monument, his title to the regard and the admiration of his fellows and of those who shall come after. Thomas McCrae was a deep student, a fine clinician, a great teacher, both in the printed and the spoken word, and an admirable friend.

Honour to whom honour is due! Let us, therefore, add a word of honour for her who, throughout their married life, helped Tom McCrae to accomplish his life's work. The many many hours which he spent at his writing-desk, after the day's routine was over, were her sacrifice to his career, her contribution to his success. They also serve who stand and wait. None the less a sacrifice, however willing, however loving a one!

Dr. E. W. Archibald, in Canadian Medical Journal.

METHOD OF EVALUATING CARDIAC PAIN IN CHILDREN

is unique in that it makes it possible, in a number of cases, to determine a subjective symptom—pain—in an objective way. In their 100 children sensitivity to pain was tested by pressure over the mastoid process and then over the styloid process. This pressure was gradually increased, depending on the response of the child. When the patient did not complain, the pressure was the maximum that could be obtained by first pressing both thumbs together and then the forefingers, thus ensuring a uniform stimulus. Several physicians of the clinic repeated these tests on some of the children and obtained the same responses that were recorded previously. Before making the test, the examiner must be certain that there is no local disease in the region of the mastoid, otitis media, mastoiditis, enlarged postauricular glands, painful scars of old mastoidectomies, and skin abrasions or lesions preclude testing that area. Normally, pressure over the mastoid causes no pain, which may be used as a control reading. The same amount of pressure applied to the styloid tips is painful to a few but painless to most individuals. The pressure should be applied in one direction, since rubbing the bones evokes the painful response of rubbing the periosteum. The presence of heart sensations, i. e., pain or palpitation, in the group who normally do not complain of pain on pressure over a bony region is usually accompanied by active cardiac disease in the majority of cases. A total of thirty-six patients had demonstrable pathologic changes of the heart, while a total of twenty-seven patients complained of precordial symptoms, again illustrating the close parallelism between cardiac damage and pain. Those children who complain of severe pain following pressure on a bony area usually complain of cardiac pain and often do not have any active cardiac lesion. In the course of an acute rheumatic infection, cardiac pain and palpitation are valuable symptoms for the diagnosis of carditis. Unless they are specifically sought for, they will be frequently overlooked.

ENTEROGENOUS CYSTS OF THE DUODENUM: REPORT OF A CASE AND REVIEW OF THE LITERATURE

Clarence E. Gardner, Jr., and Deryl Hart, Durham, N. C. (*Journal A. M. A.,* May 18, 1935), treated a case of cyst of the duodenum successfully by anastomosis with the intestinal tract. Six cases of this rare condition have been collected from the literature, with a mortality of 100 per cent. Three of the collected cases were treated surgically, two by external drainage. The operation of choice seems to be permanent internal drainage into the intestinal tract. There are two methods of accomplishing this, one having been used in the case reported. No case has been diagnosed before operation or necropsy. The symptoms are those of duodenal obstruction, with a palpable mass in the right upper part of the abdomen. An embryonic diverticulum is the probable origin of the cyst. Choledochus cysts probably have a similar origin from the persistence of diverticula that occur along the bile ducts during embryonic life.

THE NEW DEAL

(By Ogden Nash in New Canaan (Conn.) Advertiser)

Higgledy, piggledy, my black hen,
She lays eggs for gentlemen.
Gentlemen come every day
To count what my black hen doth lay.
If perchance she lays too many,
They fine my hen a pretty penny;
If perchance she fails to lay,
The gentlemen a bonus pay.

Mumbledy pumbledy, my red cow,
She's cooperating now.
At first she didn't understand
That milk production must be planned;
She didn't understand at first
She either had to plan or burst,
But now the government reports
Shes' giving pints instead of quarts .

Fiddle-de-dee, my next-door neighbors,
They are giggling at their labors.
First they plant the tiny weed,
Then they water, then they weed,
Then they hoe and prune and lop,
Then they raise a record crop,
Then they laugh their sides asunder,
And plow the whole caboodle under.

Abracadabra, thus we learn,
The more you create, the less you earn,
The less you earn, the more you're given,
The less you lead, the more you're driven,
The more destroyed, the more they feed,
The more you pay, the more they need,
The more you earn, the less you keep.
And plow the whole caboodle under.

UNDULANT FEVER

Giugni (*Policlinico,* Rome, March 23, 1935) finds that on the intravenous administration of antimelitensis vaccine in doses ranging from 5 million to 300 million micro-organisms—no less than eight and no more than ten injections being given to each patient—a good degree of tolerance is established, without danger even in grave cases. After a pronounced reaction the fever subsided in all his cases and the size of the liver and spleen was rapidly reduced. The author suggests the use of large doses in the absence of contraindications such as lesions of vital organs. Cure in Giugni's cases was rapid and complete.

HE WHO FEARS CRITICISM IS HELPLESS

Thomas Jefferson said: "He who fears criticism is helpless. Only those who do things are criticised. The idler is lost sight of in the march of events, but the doer is watched and criticized."

EXPERIMENTAL DIABETES

An interesting observation on the control of experimental pancreatic diabetes is made by Warren G. Nelson in *Endocrinology* 19:187 (March-April). "In four monkeys," the writer says, "the profound hyperglycemia and glycosuria which followed pancreatectomy were abolished by the injection of estrin," the ovarian follicular hormone.

CUT OUT AND READ ONCE A WEEK

Never be idle.
Make few promises.
Always speak the truth.
Never speak ill of anyone.
Keep good company or none.
Live up to your engagements.
Be just before your are generous.
Earn money before you spend it.
Drink no kinds of intoxicating drinks.
Good character is above all things else.
Keep your own secrets if you have any.
Never borrow if you can possibly avoid it.
Keep your promise if you would be happy.
Make no haste to be rich if you would prosper.
When you speak to a person, look him in the face.
Save when you are young, to spend when you are old.
Never run in debt unless you see a way to get out again.
Avoid temptation, through fear you may not withstand it.
Ever live (misfortune excepted) within your income.
Small and steady gains give competency and tranquility of mind.—Ex.

CRAMPING HIS STYLE

Golfer: "Hi, caddie! Isn't Major Pepper out of that bunker yet? How many strokes has he had?"

Caddie: "Seventeen ordinary, sir, and one apoplectic!"—*Boston Transcript.*

Original Articles

PRINCIPLES OF INTESTINAL SURGERY

GEORGE DE TARNOWSKY, M. D.,
CHICAGO

By principles, we understand basic facts on which to build a comprehensive diagnosis and outline a rational treatment of surgical lesions of the intestinal tract. No detailed description of individual situations can be discussed in a paper of this scope.

Whoever practices intestinal surgery should have a clear conception of the congenital or acquired anomalies which may be the cause of dysfunctions requiring operative correction. A review of surgical principles can only touch lightly on the most important derangements of intestinal rotation and fixation and merely mention by name such failures of obliteration as a Meckel's diverticulum. Not all anomalies of position produce symptoms; some are diagnosed accidentally in the course of laparotomies undertaken for conditions not related to the intestinal tract. Conversely, an abnormal position of the cecum, for instance, may mask an appendicitis which can remain undiagnosed until perforation and peritonitis tragically clears the picture. According to Folger and Robbins,[1] the process of intestinal rotation can conveniently be divided into three periods of evolution: (a) From the time during which the midgut loop occupies the embryonal umbilical hernia and until it is returned to the abdominal cavity at about the tenth week; (b) From the end of the first stage to the time when the cecum reaches the right loin in the eleventh week; and (c) From the end of the second stage until shortly after birth. Failure of the intestine to rotate beyond the first stage is seen in exomphalos, in which condition the embryonic hernia into the root of the umbilical cord persists in part or in full until birth. The second stage is one of reduction and of major rotation of the midgut loop. Anomalies of development in this stage, according to Dott,[2] are: non-rotation, mal-rotation and reversed rotation. In non-rotation the small intestine lies to the right of the mid-line and the colon to the left. The terminal ileum crosses the midline and enters the cecum from the right instead of from the left. In this position there may be no secondary fixation of the mesentery, the entire midgut hanging free from the narrow duodenocolic isthmus. Such an arrangement predisposes to the development of a volvulus of the entire midgut loop. Twenty-three such cases were recently reviewed by Gardner and Hart.[3] Malrotation may be briefly described as a combined irregular defect of rotation and fixation. The cecum and ascending colon retain their primitive mesentery in common with that of the small intestine. Cruveilhier in 1827 first described a mesenterium commune. The attachment of the mesenteric root to the abdominal wall is very short and volvulus of the common mesentery may be produced (Dott). Seven cases have been observed in which there was some obstruction to the duodenum because of such an anomaly. Haymond and Draggstedt[4] and Hickley and Cameron,[5] reported cases in which a massive intra-abdominal hernia was simulated by rotation of the pre-arterial loop into the mesentery of the post-arterial segment between the superior mesenteric artery and the colon. A peritoneal sac is thus formed which may contain the entire small intestine. In reversed rotation the transverse colon passes dorsally to the duodenum and superior mesenteric artery. Fixation of the cecum and ascending colon is usually incomplete and torsion of the mobile right half of the colon with obstruction of the transverse colon at the site of the tunnel through the root of the mesentery may readily occur. The third or final stage of rotation includes the descent and fixation of the cecum in its normal position, the fixation of the descending colon and the fixation of the last portion of the duodenum. The important feature of this stage is the fixation of the cecum to the right iliac fossa so that the mass of small intestine, originally dependant from a narrow pedicle at the origin of the superior mesenteric artery, acquires a broad oblique attachment to the posterior abdominal wall. It is the absence of this broad attachment which predisposes to volvulus of the entire mesentery. Failure of the cecum to elongate and undergo early fixation explains the subhepatic and lumbar positions of this organ. Deficient fixation of the ileocecal segment predis-

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Read before the Section on Surgery, Illinois State Medical Society, at Rockford, May 23, 1935.

poses to the formation of volvulus of the cecum or ileocecal segment (Gardner-Hart).

It must be generally conceded that a correct preoperative diagnosis of the etiology of the obstruction cannot be made in any of these developmental maladjustments. Clinically they give rise either to repeated attacks of rapidly subsiding colic, produce symptoms of partial obstruction or, more rarely, of fulminating complete obstruction and strangulation.

Stated in as few words as possible, in the embryonal evolution of the gastrointestinal tract, torsion of the primary loop of intestine occurs in a general way as follows:

The large intestine at first forms part of the posterior half of the intestinal loop, and the loop is in the median plane. Later the loop rotates so that its plane is transverse. The anterior half is then on the right and the posterior half on the left. Further rotation causes the posterior half to become anterior. In side view, the large intestine crosses the small intestine. Much later in embryonal development the torsion is completed by migration of the cecum to the right side of the body and down towards the pelvis. When this has occurred, the colon passes from right to left, ventral to the upper part of the small intestine; it then descends to the rectum on the left of the small intestine. Anomalies which the surgeon may encounter include: Imperfect torsion of the intestinal loop, Meckel's diverticulum, atresia of a segment of bowel, stenosis of one or more segments, diverticula other than Meckel's, cysts, polyps and fibromata.

Diverticula of the duodenum, especially near the outlets of the pancreatic ducts, are relatively common. They are generally round sacs, opening into the duodenum by clear-cut circular orifices. As they tend to push their way through the muscularis, they are really herniae of the mucous membrane or false diverticula. It is believed that they are produced by the distention of the upper part of the duodenum following an obstruction lower down. Anyone interested in the study of duodenal anomalies should read the splendid paper published by Dyas in 1931[6]. Clinically the symptoms produced have, not infrequently, led to ill-advised and disappointing cholecystectomies. Occasionally a single diverticulum has been found in the jejunum or ileum; more often they are multiple and occur in old people. Intestinal cysts may be found at birth or they may develop in adult life and give rise to partial or complete obstruction. We recently[7] reported an unusual case of adenomatous polyposis of the first portion of the jejunum in a four-month-old infant with clinical symptoms closely simulating pyloric stenosis. At operation a large walnut-size tumor presented itself which proved to be a partial intussusception with the adenomatous polyp at its base. Resection and end-to-end anastomosis was rapidly performed but the infant died of shock the same day.

The sigmoid colon is relatively long and freely movable at birth; frequently in the adult the sigmoid colon is excessively long, forming two or three very large coils. Should an annular carcinoma develop in such a sigmoid, volvulus, intussusception or pathologic anastomosis may occur. We have seen one such case in our experience. Congenital stenosis and atresia are less frequently in the colon than in the small intestine. Acquired stenoses following amebic dysentery or hemorrhagic colitis or caused by annular carcinomas are much more common in the colon. Diverticula of the colon are frequent, usually acquired late in life. We have encountered and reported a case in which the combination of diverticulitis, megacolon and annular carcinoma of the sigmoid coexisted.

Turning from anatomical anomalies to physiological functions, we now know that, at the end of normal gastric digestion, when the stomach has emptied its content and strongly acid gastric juice has accumulated in the stomach, the pylorus opens and a regurgitation of the duodenal content occurs which reduces the acidity of the gastric juice. Before we became familiar with this fact, the presence of bile in the stomach was looked on with anxiety. The chief alkaline constituent of the duodenal contents is not the bile, whose color gives it prominence, but the strongly alkaline pancreatic juice, and the presence of duodenal contents in the stomach at the end of normal gastric digestion is probably a protective measure against the excessive acidity of the gastric juice that follows the emptying of food from the stomach, when the acid of the gastric juice has no such buffer as the food. (Horsley). This more or less constant admixture of gastric and intestinal juices explains the scanty bacterial

content of the upper part of the small intestine, brought about by the bactericidal action of hydrochloric acid. Surgeons should remember that the scantiness of bacteria in the upper small intestine, together with the more abundant blood-supply, is especially favorable to the healing of anastomoses in this region. According to Horsley, one row of continuous sutures with a few interrupted sutures for reinforcement, seems to be better than multiple layers which turn in much tissue and thus may cause obstruction in this sensitive bowel with its active and rather delicate peristalsis. Our own preference has been to increase the diameter of the anastomosis by angular section of the bowel and the use of the classical double row of sutures with careful closure of the mesenteric gap. In the lower portions of the small intestine, while it is true, as demonstrated by Monks,[9] that the fat mesenteric border increases the difficulties of end-to-end anastomosis, we nevertheless prefer it to lateral union which always disturbs the normal peristaltic rhythm and carries with it the additional risk of leaving blind pockets on either side of the anastomosis. Careful end-to-end suturing of the bowel and closure of the triangular mesenteric space with a minimum obstruction of the blood supply removes all danger.

Quite recently Roberts,[10] in a short but excellent paper, correlated the present-day concepts which can be accepted as physiological premises upon which to base conclusions and outline medico-surgical treatment. These are:

1. The normal amount of gastric, pancreatic, biliary and intestinal secretion in twenty-four hours is more than the total quantity of combined blood and lymph in the body. In adults the total quantity passing through the upper gastrointestinal tract for reabsorption in the lower bowel averages from five to seven liters daily (McIver).

2. Fluid enters the lumen of the gastrointestinal tract by way of the mucosa even though none is taken by mouth.

3. Water and inorganic salts are not absorbed in the stomach, duodenum or jejunum but must be carried by peristalsis to the lower ileum and colon for reabsorption.

4. A continued loss of gastric juice results in the production of alkalosis, while loss of pancreatic juice and bile with the resultant decrease in sodium, produces changes in the blood-chemistry characteristic of acidosis.

The significance of intestinal distention and its proper interpretation is of considerable importance in making an accurate or working diagnosis which may decide for or against an immediate surgical intervention. Is the distention general or local; does it involve the large or small bowel: is it accompanied by an increase in peristalsis, or have all intestinal contractions ceased? These are cardinal questions which the diagnostician should endeavor to answer satisfactorily whenever possible. It is a well known fact that non-penetrating trauma of the abdomen or crush fractures of the lower ribs often produce a severe grade of paralytic ileus in the absence of any discoverable intraperitoneal injury. Wills and Atsett[11] call attention to what neurologists have long maintained, namely, that conditions remote from the apparent location of the disturbance—extra-visceral conditions—may produce signs similar to those of pathologic involvement of viscera. They present the histories of a number of cases of dorsi-lumbar sprains with transitory distention of the abdomen associated with pain, nausea and emesis. Watchful waiting and local treatment of the myositis or myo-fascitis soon cleared the diagnosis in all of their cases. The classical "solar plexus" blow of the pugilist is a mild example of acute transitory paralytic ileus. One must assume that some irritation of the autonomic system has occurred which paralyses the intestinal musculature with instant cessation of all peristalsis. When the trauma received has been a mild one, intestinal motor power is recovered within a few minutes to a few hours and intestinal function restored. Occasionally the damage is more severe and the signs and symptoms of obstruction become so pronounced that one finds great difficulty in establishing the absence of a serious intra-abdominal lesion. (Orr.[12]) On opening the distended abdomen one may find a slight tear of visceral peritoneum of one or more loops; at other times, there may be a linear tear in the mesentery with slight or absent hemorrhage; or again, there may be found only an acute edema of the traumatized intestine with petechial hemorrhages dotting a small segment. The safe surgeon should not hesitate to explore in all honestly doubtful cases. Infinitely better and

safer for the patient is it to open an abdomen and find nothing to repair—or at best only a superficial tear of serosa or mesentery which can be closed with a couple of sutures—than to procrastinate until severe toxemia or general peritonitis is manifest.

Distention is usually universal in sympathetic plexus traumatism, spreading peritonitis, spinal cord lesions, mesenteric vessel thromboses and in intoxications such as from morphine, lead, etc. On the other hand, in all cases of mechanical ileus, whether of the strangulation or obturation type, distention of bowel is always primarily local and proximal to the site of obstruction. Increased peristalsis proximal to the lesion is always present and persists until peritonitis ushers in the paralytic ileus picture. As a general rule, abdominal distention centering around the umbilicus is indicative of simple obstruction or strangulation of small bowel, whereas, if the colon alone is involved, the distention is most marked in the flanks and epigastrium. In patients with thin abdominal walls it is even possible at times to see the outline of the distended colon.

Wangensteen[13] is of the opinion that 80 per cent. of the gas in the intestinal canal is "swallowed gas." This may be true in health, but, in the presence of intestinal obstruction, with the patient vomiting and unable to swallow and retain solids or liquids, other sources of gas must be found to explain the often enormous distention found in acute cases. According to Wiggers,[14] "distention of intestines is partly due to liquid, but to a considerable extent to gas. This excess of gas is only partly due to fermentative and putrefactive changes, but is largely the result of diffusion of blood gases in the intestine. The low tonus of the intestinal tract in obstruction increases the vascular supply of the mucosa by lack of extra-vascular support and the dilated capillaries in consequence give off larger volumes of their gases. It is also possible that distention increases the permeability of the mucosa for toxic substances or that toxins are formed in the abnormal membrane itself. It is also probable that the increased activity of gas forming bacteria of the B. Welchii group may account for some of the gaseous distention." While a larger volume of blood is carried to the affected intestine, Wangensteen is on solid ground when he states that there is lessened venous absorption and increased lymphatic and transperitoneal absorption in intestinal obstruction.

By simple observation of a patient's abdomen, with natural or artificial light shining on it obliquely, much can be deduced, especially if the case is seen early. The sausage-like tumor of intussusception, peristaltic wave of a pyloric stenosis, visible coils of small intestine vainly attempting to overcome a mechanical obstruction, rhythmic contraction of the abdominal wall with spontaneous increased flexion of the lower limbs to lessen the pain of peristalsis, and atypical distention of both flanks in colon obstructions can all be noted and estimated. Observation is not time consuming and should never be omitted.

Palpation, properly carried out, is of extreme importance; improperly, i. e., forcibly undertaken, it defeats its own purpose. One cannot too strongly stress the necessity of exerting gentleness, of palpating with the pulp of the fingertips and not the nails and of allowing the flattened hand to lie gently on the abdomen in order to catch peristaltic waves. In differentiating between a possible perforation of a duodenal ulcer where the gastric content is apt to pass along "Moynihan's gutter"—the watershed formed by the ascending colon—and accumulate in the right iliac fossa, and acute appendicitis, Rovsing's sign is of the greatest value. Pressure over the upper sigmoid in the left iliac fossa forces gas into the cecum. If this maneuver causes increased pain in the right iliac fossa, the case is mostly likely one of appendicitis. Borborygmi can always be felt if present. Total absence of peristaltic waves and of borborygmi is evidence of ileus.

Percussion, except as a means of determining the presence of free fluid in the abdomen, a rise of liver dulness or of confirming distention of the colon has not, in our hands, proved to be of much value. Auscultation, contrariwise, particularly if repeatedly used, is of the greatest value. With a little experience the clinician easily learns to differentiate between the faint and fairly regular borborygmi of normal peristalsis and the loud, angry, combative explosions wasting their efforts against a totally or partially impassable obstruction. These intestinal noises coincide almost invariably with the height of the crampy pains of unbalanced peristalsis.

Total absence of borborygmi in cases of delayed diagnosis or where ill-advised doses of morphine mask the clinical picture, is of little help in differential diagnosis. Loud borborygmi, lessening in intensity and frequency over a period of hours, serve as a warning to the clinician that paralytic ileus is either threatening or already established. Wangensteen,[15] describing what the resident and attending staff of "obstruction minded" hospitals can hear, almost poetically states that:

"Loud peristaltic rushes, like the bubbling sound produced by pouring water out of a bottle, may be heard with the stethoscope when a mechanical obstruction exists. Near the point of occlusion these noises may attain an explosive force. Frequently a metallic tinkle may be heard, a sign of conclusive significance for the existence of a bowel under tension. As the fluid and air are carried downward toward the point of obstruction by peristaltic rushes, their progress is suddenly arrested and fluid and air which are intimately mixed in their advance, tend to separate as the onward movement is halted. As the air rises to the surface, a sound like drops of water falling in a rain barrel may be heard. The metallic character of the sound has a high pitch, imparted by the tension of the dilated intestine. Loud intestinal noises with maximum intensity at the height of the pain corroborate strongly the suspicion of mechanical occlusion. The coincident occurrence of gurgling sounds and intermittent pain is very significant. Only colics of the intestine are heralded by crampy pain and concomitant loud gurgling noises."

The cause, nature and action of the toxin: An infinite number of substances have been claimed to have toxic action, but it appears probable that it is either a proteose (Whipple), a toxic amine (Dragstedt and Dragstedt), or perhaps a histamine (Brager and Dale, Stone, Gerard). Concerning the mechanisms by which this toxin produces death, it is tacitly assumed that generalized destruction of protein and eventual renal involvement are accountable. Clinically, we have the classical picture of toxemic shock.

Summarizing, it seems probable that different factors may combine to produce the grave systemic symptoms. In cases of simple obstruction, loss of chloride and base, together with anhydremia, constitute the most important and often the only factors concerned. Toxemia enters to a minor but increasing extent as the obstruction occurs at progressively higher levels. On the other hand, in closed loops and strangulation, toxemia appears to be the chief factor and causes death before other factors have time to be produced. Clinically, one must admit some unexplainable similarity between toxemia of high obstruction, acute hemorrhagic pancreatitis, anaphylactic shock and bilateral adrenalectomy.

Low colonic obstruction (left side of the colon), causes less severe symptoms. Vomiting is not so frequent. In spite of a normal intake of fluids, dehydration slowly intervenes. Blood analysis in colon obstructions reveals the same tendency to dehydration, decrease in blood volume and increase in urea nitrogen as in high intestinal obstruction. The plasma chlorides, however, remain normal. Unrelieved by surgery, low colonic obstruction eventually proves fatal from toxemia.

An enormous amount of experimental work has been done in an endeavor to solve the riddle of intestinal toxemia. Beginning with Amussat in 1838, numerous investigators have battled with the problem: the end is not yet. According to Best, Newton and Meidinger[16] it is now generally admitted that in strangulation ileus, where the blood supply of an intestinal segment is totally shut off, toxemia is a strong factor in the causation of death; in simple obstruction the same is not true, or not proven. Substantiating the work of Roger and Garnier[17], Wangensteen in 1928 was able to establish the fact that there was equal toxicity of the contents of normal and of obstructed intestines and that apparently the contents below the obstruction were even more toxic than those above it.

A series of experiments carried out by Albeck, Kukula, Clairmont and Ranzi, Magnus-Elsleben, Braun and Borutten, Enderlen and Hotz, Davis, Cooper, White and Fender, Dragstedt and Dragstedt—and others, all suggested that there was no specific toxin in simple obstruction and that, therefore, the cause of death in non-strangulated ileus must be either increased absorption of substances normally present in the intestine, or the failure of a neutralizing process or "buffer reaction" which would ordinarily occur when the contents of the upper and lower intestines mingle. Control experiments by Best and associates (loc. cit.), would seem to prove that the intermixture of upper and lower intestinal contents is necessary, at least in part, for a normal physiochemical balance. It was also shown experimentally that there is no increase in the rate or selectivity of absorption above the obstruction,

and this seems strong evidence that increased absorption above the obstruction cannot be the cause of death. Furthermore it seems probable that there is no increased absorption below the obstruction.

What can the clinical surgeon deduce from all these interesting findings?

1. That the greater mortality in high intestinal obstruction is not due to toxemia in non-strangulated cases but to the fact that admixture of upper and lower bowel content is blocked;

2. That, where indicated, an enterostomy should be performed as near the ileocecal valve as possible because the higher the enterostomy the less is the "buffer reaction;"

3. That gastroduodenal siphonage and the reintroduction of the aspirated gastrointestinal juices by proctoclysis is a physiologically sound procedure;

4. That Wilkie[18], is quite logical in performing his temporary extra-abdominal intestinal anastomosis through a tube. He makes two short abdominal incisions, one above and one below the umblicus. Through the upper incision he seizes the highest accessible loop of distended jejunum and introduces a catheter using the Witzel technique. Through the lower incision he seizes an empty loop of ileum, introduces a second catheter and connects the two tubes by means of a glass tube. As a temporary, life saving, procedure in desperate cases this method should be more generally adopted.

5. That obstruction of the left colon is compatible with life for some time because intermixture and absorption of intestinal contents has already occurred above the obstruction.

Circulatory and respiratory failure and death in intestinal obstruction is now generally believed to be produced by an interaction and summation of a number of factors, any one of which alone would be sufficient to cause an irrevocable circulatory failure. Briefly stated these factors are:

1. *Anhydremia.* This is the direct result of increased gastrointestinal secretions, their failure to be reabsorbed, and elimination by vomiting. Dehydration reduces the circulating volume, decreases the output of the heart, lowers arterial pressures and produces stagnant anoxemia (reduction of oxygen), accounting for the cyanosis which is present unless prevented from manifesting itself by vasoconstriction. Intravenous injections of normal salt solution may prolong life *but,* owing to an unbalanced equilibrium (between intake and outflow), this solution is rapidly eliminated through the kidneys or through augmentation of gastrointestinal secretions, in the latter case continuing rather than breaking a vicious circle.

2. *Dechlorination.* Sufficient chloride is lost in the urine and gastrointestinal secretions to account for the reduction in blood and tissue chlorides, regardless of whether it is evacuated by vomiting or remains in the gastrointestinal tract. This loss of chlorides interferes with the maintenance of osmotic pressures of body fluids, of the acid-base balance and transport of carbon dioxide. Dragstedt and Ellis[19] believe the effects of dechlorination to be the same as those resulting from a total loss of gastric juice through a fistula.

3. *Alkalosis.* With the loss of chlorine ions in excess of base, a condition of alkalosis tends to develop because the base retained tends to combine with HCO_3.

4. The rise of blood urea and non-protein nitrogen is brought about by increased destruction of stored or tissue proteins, which strongly suggests that a toxic factor is at work.

Valuable as these findings are from the viewpoint of abstract science, they are of little help to the clinician because none of them are demonstrable early enough and furthermore they only obtain with regularity in high intestinal obstruction. While waiting for laboratory reports, a majority of these cases would die. Surgeons however owe a profound debt of gratitude to research workers for the practical application of some of their conclusions; for the therapeutic and operative improvements made possible by their abstract experimental findings. It is through them that we know of the greater mortality in strangulation ileus, of the life-saving and occasionally curative effects of continuous siphonage in simple obstructions, of the wisdom of doing a primary simple and rapid enterostomy, postponing removal of the cause of obstruction after the patient has been decompressed. Enterostomy, Wangensteen states: "Is life saving in late simple obstruction, not because it drains off a potent toxin that threatens the organism but because it relieves tension within the bowel, restores the normal blood sup-

ply, allows the continuance of absorption from the bowel (which practically ceases in obstruction) and permits the automatic establishment of the continuity of the bowel in the absence of a persistent intrinsic obstruction below." An important item in accomplishing decompression by means of the Wangensteen-Paine[20] nasal catheter suction siphonage is to have holes cut back on the distal end of the Levin tube for about ten inches, so that constant suction may be exerted in the stomach as well as in the upper portion of the small intestine, after the tip of the tube has gone beyond the pylorous. Siphonage is not a panacea: it has distinct limitations. It should not be used in any case of strangulation ileus which should be recognized by the great suddenness of its onset, high degree of shock and rebound tenderness on palpation. It is useless in carcinomas of the left colon. Suction should not be relied upon in any case which fails to show clinical improvement within six to ten hours. Wangensteen believes that frequent x-ray flat plates, taken bedside, may help in determining the success or failure of siphonage. The chief field for this method of decompression is in postoperative obstruction which, in a majority of cases, is caused by undue and often unnecessary traumatization of visceral and parietal peritoneum.

How far can clinical surgeons rely on the use of the x-ray as an aid to diagnosis? Schwartz, Case, Kloiber and others have long insisted that the diagnosis of bowel obstruction could be made on the presence of gaseous shadows in the small bowel, the latter always indicating intestinal stasis. It is not always possible to determine whether gas is in the colon or small bowel. We have elsewhere[21], pointed out the possible danger of perforation in the use of the barium enema in the presence of carcinoma of the left colon. In all cases of complete obstruction of the small bowel, the oral administration of barium is to be condemned. A single plate made of the abdomen may reveal the presence of gas, plainly visible in the small intestine if the transverse colon is in its normal position, and corroborate the other findings of intestinal stasis. Wangensteen (loc. cit.) believes it may also determine the degree of distention of the bowel. Where perforation of the bowel, large or small, has occurred, some of the free gas may gravitate beneath the diaphragm and be recognized roentgenologically (Vaughan-Rolnick).

The generally accepted possibilities of the x-ray as a means of confirmatory diagnosis may best be stated in the words of our Roentgenologist at the Ravenswood Hospital, Dr. David L. Jenkinson. In his opinion:

"A plain or 'scout' film of the abdomen will render a considerable amount of information in cases of acute intestinal obstruction *when the physical and clinical information is not complete and well established.* The examination should include the urinary tract and the abdomen with the patient in the supine and upright position and with the patient on his side when necessary. Distention of the intestines with gas and the presence of fluid levels in the bowel often lead to an accurate diagnosis of acute intestinal obstruction with the approximate location of the obstruction. The question of urinary colic with a reflex ileus rather than a mechanical obstruction can often be determined. When the condition of the patient permits and there is evidence that the obstruction may be reflex and not mechanical, intravenous urography may be used to positively exclude the urinary tract. Negative plain films do not necessarily exclude intestinal obstruction, whether acute or partial.

"In partial intestinal obstruction our procedure is as follows: The patient's bowel is completely cleansed by means of enemata and castor oil whenever possible. The pathology in the colon is first excluded by means of a barium enema which is given during fluoroscopic examination so that the filling of the colon may be seen and palpation done. In as many instances as possible the terminal ileum is also filled and examined. An x-ray film is taken of the abdomen after the colon is filled and one immediately after the enema has been expelled. Much additional information can be obtained in certain cases by the injection of air immediately after the barium enema has been expelled. This is especially true where polyps or small tumors which do not alter the contour of the bowel are suspected. If the partial obstruction is not present in the colon, a small amount of barium by mouth may be given followed by three, six and twenty-four hour fluoroscopic and radiographic examinations of the small bowel."

To this very conservative résumé of roentgenological possibilities must be added a few words of warning. In both strangulation ileus and vascular occlusion, the gas shadows appear later than they do in simple obstruction and it would be folly to delay surgical intervention in these fulminating cases. As a means of reducing intussusception in infants, barium enemata have been given by some surgeons. The introduction of air in the colon, under low pressure and manipulation of the intussusception by hand, advocated by A. H. Montgomery and others, is a safer procedure.

Principles of Treatment: In a paper dealing with principles of intestinal surgery, brief mention must be made concerning the handling of intestinal traumata whether occurring in closed or open (gun-shot or stab) wounds. Operation is indicated as soon as a diagnosis of visceral injury is positive, probable or even doubtful. Mesenteric hemorrhage and perforation carry with them a high mortality unless diagnosed and treated as soon as the patient is in a properly equipped hospital. Unless the probability or possibility of severe mesenteric hemorrhage can be ruled out, under no circumstances should such a patient receive cardiovascular stimulation. The mistake, frequently fatal, of stimulating a patient in shock without having previously ruled out or checked hemorrhage is so often made that a few remarks on elementary physiology would seem indicated. In shock associated with or caused by hemorrhage, the cardiovascular system is at its lowest ebb. The pulse is rapid and thin, blood-pressure subnormal and respirations rapid and shallow. Blood issuing from a torn vessel flows more and more slowly and primary clotting occurs. Hemorrhage ceases and remains in abeyance as long as the patient remains in shock. Normal saline, glucose solutions, blood transfusions or cardiac stimulants given hypodermically increase heart action and raise arterial tension. The primary clot is loosened, secondary hemmorrhage occurs and the patient expires. "Stimulate as you clamp or ligate" should be our slogan in hemorrhage cases!

Having decided that surgical intervention is indicated a paramedian incision is made, of sufficient length to enable the surgeon to introduce his whole hand in the peritoneal cavity. Many valuable minutes will be saved if the surgeon has a definite routine for exploration of the abdominal contents. Our preference is to begin at the right upper abdominal quadrant, palpate the right kidney, dome and under surface of the liver, pancreas through the foramen of Winslow, stomach, spleen and left kidney. The gastrocolic and great omentum are next inspected for torn vessels. Passing our right index fingers below the transverse colon, we encounter the ligament of Treitz and begin our inspection of the small bowel and its mesentery. As one loop after another is drawn up and inspected it is returned by the assistant so that undue exposure of bowel, leading to shock, is minimized. At the ileocecal valve we begin our inspection of the colon which is similarly gone over as far as the peritoneal reflection of the recto-sigmoid. Nothing is missed; no perforations or vascular tears remain unrecognized. Ligation of torn vessels, purse-string closure of gun-shot or stab wounds, or resection and end-to-end anastomosis represent the essential steps to be followed. As a general rule, modified by exceptional conditions, each perforation should be sutured before continuing with the systematic inspection of lower loops. Such an exception would be the presence of multiple perforations of a single loop, in which case we double clamp the wounded segment after milking it empty, cover it with a rubber sheet and isolate it before continuing with our search. Where it may seem necessary to eviscerate a number of intestinal loops, David Cheever's method of protecting them is an excellent one. Cheever uses either a large rubber bag or moist rubber dam to cover the intestines with, keeping them warm by means of hot compresses applied against the rubber and not on the intestines. Anybody who has observed the traumatism which exposed bowel is subjected to will appreciate the value of this simple method.

Following repair of perforations or suture of vascular lesions, no drainage of the peritoneum is indicated even if there has been some soiling. For over twenty years it has been our custom in all potentially septic cases to pour one ounce of ether in the peritoneal cavity as we begin its closure; we can see no reason for giving up this phagocytic stimulant and adjuvant to cell resistance[27].

In all cases of strangulated hernia, before deciding for or against resection of an apparently gangrenous loop of bowel, the excellent procedure of Samuel C. Plummer should be carried out. After reducing the strangulation, the involved loop should be replaced in its normal position and allowed to remain there for three to five minutes. By that time circulation, if not hopelessly impaired by thrombosis, will have been restored. We have repeatedly used this most valuable procedure in doubtful cases. Should the patient's condition not warrant immediate resection and anastomosis of a hopelessly gangrenous loop, exteriorization and enterostomy are indicated. The same principles apply to all other types of strangulation ileus.

Should the strangulation be in the lower ileum and have remained undiagnosed for a considerable number of hours, a very high degree of intraintestinal pressure develops. Elmer[24] has pointed out the danger of too sudden a deflation in such cases. According to his theory:

"Post-operative toxemia is probably due to the fact that, while intraintestinal pressure is high enough to interfere with the blood flow through the intestinal wall, an efficient barrier is still present between the fecal content and the circulation; provided, that is, that the pressure is not great enough to force passage through the entire intestinal wall into the peritoneal cavity. According to this idea, then, the intestinal distention for a time at least acts as a protection against absorption of toxins or bacteria. Now, whenever the intraintestinal pressure fails sufficiently, the blood flow through the intestinal wall begins again and there is nothing now to prevent intestinal toxins and bacteria from entering the dilated capillaries."

It is a wise plan, after introducing the enterostomy catheter, to clamp it from time to time and not allow all of the air and fluid content to rush out en-masse. We have all observed the same collapse, minus the toxemia, after removal of large ovarian cysts, dermoids or fibroids.

Where resection is indicated and the patient's general condition is favorable, end-to-end anastomosis is the ideal. Horsley's suggestion to section the mesentery first is a good one; it minimizes the possibility of soiling the mesentery with fecal content. Prior to placing intestinal clamps on the enterostomy site one should always strip or milk that portion of bowel empty.

In simple obstruction, with considerable distention above the band, kink, visceral volvulus, etc., puncturing the most distal segment of paralyzed bowel with a small trocar will be of great help, provided the loop selected is held outside of the peritoneal cavity and soiling of the field of operation is carefully guarded against. As the distention is slowly allowed to subside, a fine purse-string suture is placed around the trocar and tied as the former is removed. Search for and removal of the obstruction is thereby much facilitated.

If the nasal catheter suction apparatus is used, one should know its limitations. It is merely a temporary expedient in mild, principally postoperative, cases of partial obstruction or paresis. Never should it be used in any case where toxemia is the chief danger to the patient's life. Enterostomy, as admitted by Wangensteen, "has one distinct advantage over nasal suction, namely, the opportunity to feed the patient through the catheter as soon as decompression has been effected." Similarly, in carcinomas of the colon where distention is a major factor, McNealy[28] has stressed the advantage of a primary cecostomy. By introducing a catheter into the cecum the distention is relieved and through the same catheter saline or glucose solutions can be given freely. By introducing large amounts of glucose solution the ileocecal valve can be overcome and the glucose made to enter the ileum where it can be absorbed.

In certain types of carcinoma of the splenic flexure or first portion of the descending colon, a transversostomy is indicated as a temporary means of decompression. As an alternative procedure, a temporary ileostomy of the Witzel type may be used for both decompression and feeding purposes. At a later date, usually two weeks or longer, the carcinoma and as much mesentery as possible are removed, the two stumps of colon sutured with the clamps still attached for a distance of eight cm, brought out through the incision and sutured to the abdominal wall. The clamps should remain in situ for 4-5 days. The continuity of the transverse colon is next restored by the Mikulicz technique and the catheter removed from the ileum.

Kerr's technique of aseptic anastomosis has much to commend it. After excising the carcinoma, the two stumps of colon are temporarily closed by means of a silk-worm-gut "basting thread" suture. These sutures are not tied but used as tractors to approximate the segments while they are united by a continuous suture. Once the circular suture is completed, the "basting threads" are pulled out and the bowel is pinched by the surgeon's fingers in order to open the stoma.

In carcinoma of the lower sigmoid we have been using an osteoplastic modification of the Kraske operation which has enabled us to remove the growth, perform an end-to-end anastomosis and thus restore the continuity of the colon. The decompression colostomy should be closed one week later. We have also used, in carcinomas of the rectum, where the sphincter has to be sacrificed, what, for want of a better term, we have called our "corkscrew" operation. After resecting the growth, the sigmoid is mo-

bilized, twisted on its long axis 90 degrees and, in this position, sutured by interrupted sutures to the levator ani muscle. The valve thus formed is quite serviceable after three to four months.

Pre-operatively and postoperatively we give 1000-1500 cc of a 2-5% sodium chloride solution with 50-100 cc of a 50% glucose solution by combined hypodermoclysis and venoclysis.

Dixon of the Mayo clinic[29] has recently reported a lessened mortality from peritonitis through the use of autogenous vaccines. We have had no experience with them.

An attempt to specifically point out the causes of the high mortality which still pertains in cases of complete intestinal obstruction and, more specially, to evaluate the methods which seem to lessen the number of fatalities, is a well-nigh impossible task: Any surgeon having a considerable number of such cases referred to him will, as he gains more and more experience, see his mortality rate diminish. All surgeons agree that delayed diagnosis on the part of the family doctor and hesitancy on the part of the patient, raise our mortality rate; also that attempting to do more than the individual patient can withstand, shows poor judgment. It was hoped that our better knowledge of the perversion of blood chemistry in acute ileus might considerably lower our mortality rate. Contradictory reports becloud the situation. Amendola[30], analyzing all cases of intestinal obstruction brought to the Roosevelt Hospital (New York) from 1921 to 1935 states that: "Since 1928, large quantities of salt and fluids before and after operation has become a standard procedure. The anticipated improvement in our results, however, has not materialized. In the seven years prior to 1928 we had 115 cases with 41 deaths, or a 35.6% mortality. Since 1928 we have had 85 cases with 28 deaths or a 32.9% mortality. The average clinical case of acute ileus, he says, presents problems which are quite different from those encountered in the experimental animal." In his opinion, the administration of large quantities of salt solution preoperatively and postoperatively has had no appreciable effect on our mortality in acute intestinal obstruction. He warns against resection of gangrenous intestine with primary anastomosis in a patient afflicted with acute intestinal obstruction. We fully agree with him when he says: "In view of the frequency in which intra-abdominal strangulation is encountered and the difficulty of differentiating it from simple occlusion, any undue delay in operating is not justifiable. Conservative procedures such as the prolonged administration of salt solution and duodenal intubation, however, are of distinct value in the simple obstruction associated with an early plastic peritonitis and may be employed with advantage (possible), in the markedly advanced cases of ileus in which immediate surgical attack is too hazardous.

Meyer and Spivack[31], reporting on 505 cases of intestinal obstruction admitted to the Cook County Hospital, stated that only 292 of them (57%) were operable. Of the remaining 213 cases, a few left the hospital after refusing operation. Of the cases operated on, 142 died, giving a mortality of 48.6%. That the death rate will always be higher in public hospitals is conceded. In private practice we still lose between 25 and 30% of similar cases.

Moss and McFetridge[32] collected the histories of 511 cases of intestinal obstruction from the records of the Charity Hospital, New Orleans. They claim that their early high mortality of 71% has been reduced to 31.7% and attribute the improvement to: "the use of the proper preoperative preparation, chiefly directed toward the correction of perverted blood chemistry, by the restriction of surgical procedures to those directed only towards the relief of obstruction, etc."

SUMMARY AND CONCLUSIONS

1. In the presence of a case of intestinal obstruction, of closed or open trauma of the intestinal tract, preserve a judicial attitude and avoid hasty deductions. "Festina lente," make haste slowly, is a good anchor to grasp!

2. All intestinal lesions associated with active hemorrhage or circulatory strangulation demand immediate surgical intervention.

3. Many cases of partial intestinal obstruction, and particularly those following laparotomies, only need decompression via per-nasal gastroduodenal siphonage in order to be permanently relieved.

4. In the presence of strangulation obstructions no more should be done than the patient's condition warrants. It is here that surgical judgment and experience count the most. Release of the obstruction with restoration of the

continuity of the intestine is, of course, the ideal. This procedure may be simple and rapid, a mere cutting of a constricting band, or it may involve resection and end-to-end anastomosis. A rapid enterostomy with exteriorization of the strangulated loop will save the patient's life; at a later date resection and anastomosis becomes a relatively safe procedure.

5. While not denying the confirmatory value of the laboratory and x-ray department, the surgeon whose own senses (sight, hearing, palpating) are constantly on the alert, will make the fewest mistakes in diagnosis.

6. Whatever decision the surgeon may arrive at, in the course of his intervention he should at all times be ready and able to individualize his technique to suit a particular situation. Finally he should constantly work "suaviter in modo, fortiter in re," gently in the manner, firmly in the act!

7. A clear understanding of the mechanical and physiochemical factors involved in intestinal obstruction should enable the general practitioner to make earlier diagnoses; in prompt intervention lies the only hope for any considerable reduction in mortality.

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DISCUSSION

Dr. Carl E. Black, Jacksonville, Illinois: I am sure you have been benefited by this paper and have been given an idea of what a great number of complicated problems the gastrointestinal tract brings to the surgeon. For years after the introduction of aseptic surgery, surgeons were occupied in devising new operations and working out details of technic. Today our study has turned back to the patient. Our diagnosis may be correct and we may be satisfied as to the operative procedure indicated, but still we may not be able to make an operation. This makes the difference between "operators" and "surgeons"—operators are many, and surgeons are few. The surgeon will not operate until he is satisfied that every detail, consistent with the patient's condition of pre-operative care, has been carried out to reduce the operative risk to the minimum. Avoid all undesirable haste, although the attending physician, patient or friends may urge immediate operation.

There are several factors which affect the end result which are not under the surgeon's control: First, delay by the patient in calling the physician or in accepting his advice; second, delay by the attending physician in making a diagnosis, in urging prompt action, or in placing before the patient and his family what is involved. There are also several factors which are under the surgeon's control: Too much haste on insufficient grounds; inadequate study of the case, including physical examination, laboratory tests, and evaluation of the patient as an individual risk: due attention to the various means of postoperative support which favorably modify the immediate period following operation as well as the period of convalescence.

The danger signals in acute abdominal infections are also the surgeon's affair: the board-like abdomen, the distention; the presence in the urine of albumin or casts, or both, acetone and diacetic acid; the low kidney function. All or several of these may be present. There may be heart disturbance or disease, lung dis-

turbances or disease, such as bronchitis, pneumonia, tuberculosis, pleuritic effusion or emphysema. In fact, every condition present must be given due consideration before proceeding with any intraabdominal procedure.

The essayist has brought out the fact that too little attention is being given to the physiological relations involved in operations on the intestinal tract. In fact, here is a great field for study. We need many more facts about the interaction of the intestinal secretions and their relation to nutrition and to tissue metabolism. The essayist used one sentence which covers a most important consideration, when he spoke of the "reintroduction of fluids from the upper intestinal tract into the lower intestinal tract." In connection with a recent case I had occasion to make a rather extended search for information which would be practically helpful on this point. While a great deal of work has been done on the physiology of digestion, there remains much to be done.

Some months ago, a woman 58 years of age, married, was brought to the hospital in a very precarious condition on account of what seemed to be acute intestinal obstruction. Going back into the history of the previous eight months, it was perfectly plain, however, that this patient had had recurrent attacks of partial obstruction which would be relieved by liquid stools before the obstruction became complete. She had been more or less of an invalid, and finally arrived at the hospital with all the signs of complete obstruction. If a patient has complete obstruction, there is only one thing to do, that is, relieve the obstruction. Therefore, after giving her intravenous glucose prior to the operation and continuing it on the operating table, the abdomen was opened and revealed complete obstruction due to a fecalith about the size of a hen's egg. The gut was incised and fecalith removed. A large catheter was introduced through a stab wound in the distended gut about six inches above the obstruction and after observing the circulation in the gut for a time, the gut was closed. The obstruction was in the lower third of the jejunum. Owing to the lowered vitality of the patient, the wound opened up and we had a fecal fistula. While for a time the patient improved, we were never able to reestablish proper intestinal digestion. We tried injecting fluids, bile salts, pancreatic salts, etc., into the lower intestinal tract, siphoning fluids from upper end and injecting it into the lower end and connecting the two ends of the fistula with glass tubing, hoping a normal mixture of intestinal fluids could be secured. I think we would have succeeded had it not been for the prolonged period of poisoning by lack of proper intestinal fluids. I consulted all the literature available and I must say that I got very little help. It seems to me that there is a physical problem of digestive absorption, and the problem awaits solution by somebody in the future. I take this opportunity to put this case into the record because it covers the point the essayist made, namely, that the absence of fluid from the upper intestinal tract in the lower is a very serious thing—no doubt mixing these fluids is essential. In this case blood transfusions, intravenous glucose, putting glucose into the colon accomplished nothing. The patient finally died from some form of toxemia, malnutrition, or what you will, due to failure of proper intestinal fluid mixture. Here is a physiological problem to be worked out.

Dr. George de Tarnowsky, Chicago (closing): I had a somewhat similar case a number of years ago. The obstruction was caused by a large gallstone which had evidently perforated into the colon. In that case the patient came to me with a paralytic ileus. This patient also succumbed.

CATARACT SYMPOSIUM
INTRODUCTORY REMARKS

Oscar B. Nugent, M. D., Chairman
CHICAGO

Nearly 200 years ago in Europe there began a controversy between two great schools of thought concerning the proper method of cataract extraction: The capsulotomy method, first performed by Daviel, and the intracapsular method advocated by Samuel Sharp. The former has held the stage until within the last few years since which time the latter has been accorded a goodly share of attention.

The subject of cataract extraction is a tremendous one. In a territory in India, comprising but six provinces, or about two-thirds of the total area, there were performed, according to Col. Smith, 1,348,358 cataract extractions from the years 1881 to 1924 inclusive. If the same number only had been performed the subsequent ten years as the preceding ten, the number would be 1,811,573.

The present status of cataract extraction in the world has been created, in a large measure, by the works of the ophthalmic surgeons of the past, and that of the future will be greatly influenced by the works of the present day ophthalmic surgeons; therefore, what will be said here today will, in a measure, influence the future operation for cataract extraction.

Those surgeons who have given this subject much study and thought realize more than others the high position that modern methods of cataract extraction has attained.

I would like to stress three points in these few general remarks:

1. The importance of delivering a lens

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

through a dilated pupil in order that there will be a round active pupil following the extraction. Four advantages are to be noted: (a) better results following the use of eserin immediately following extraction; (b) lessened danger of postoperative hemorrhage into the anterior chamber; (c) a round active pupil for the more normal control of light entering the eye; and (d) a more perfect cosmetic effect.

2. Multiple tension sutures to insure greater security in closing the wound. The average conjunctival incision in a cataract operation is from 20 to 22 mm in length. My custom is to use about 9 sutures about 2 mm and a very small fraction apart. The sutures are of the finest silk thread and are placed as near to the limbus as possible and then carried well up into the bulbar conjunctiva so that when they are tied there is a slight tension which is slightly increased during the subsequent swelling and assists in holding the cut edges of the sclera well into the proper apposition. The danger of leakage from the wound is lessened and iris prolapse and incarceration are reduced to a minimum. Healing is more rapid and more secure and the dangers of hemorrhage into the anterior chamber from cut scleral or conjunctival vessels is greatly reduced.

3. A carbon arc lamp with a filter producing a ray rich with violet and ultraviolet which causes a bright fluorescence of the lens cortex. (This lamp has been described by Rommel Hildreth of Saint Louis.) Its value cannot be overestimated in capsulotomy operations and attempted intracapsular operations resulting in broken capsules, for working under its light, the anterior chamber can be completely cleared of all lens cortex, whether it is filled with the opaque substance or perfectly clear, and in most cases the capsule is so plainly visible that it can also be extracted from the eye with a forceps resulting in a complete extraction.

I am working with the Bausch & Lomb company now attempting to design a practical lamp of this sort to be used by the ophthalmic surgeon which I believe will be described in the literature in the near future. It is one of the most valuable of recent additions to our armamentarium for cataract extraction.

WHAT THE SLITLAMP SHOWS

ROBERT VON DER HEYDT, M. D.
CHICAGO

1. *Senile Cataract of the Lens Cortex.* The most common type of senile cataract is that in which one finds supranuclear cortical changes in the form of radial and concentric fissures. These fissures, when incipient, are filled with fluid. Lenses may incline to radial or to concentric fissure formation, or there may be a combination of the two types. The incipience of this process is a characteristic picture under the slitlamp. Radial fissures are usually an involvement of the radial lamellae of Rabl. In their incipience they present a black area in the narrow beam of the slitlamp. While these areas predict a threatening opacification, the process may remain thus stationary for many years. If one finds gray spokes visible with the ophthalmoscope, and no evidences of threatened progression (fresh fissure formation) with the slitlamp, one may presume that the development of this cataract is at a standstill, possibly permanently.

Lenses may also show a disposition to fissure formation in a concentric (lamellar) direction. These, when fully advanced, present the well known dark plaques seen in the lens with the ophthalmoscope. While they are fissures in a concentric direction, they are not splittings along definite anatomic lines. The fibers are too intermingled to allow of this along smooth concentric planes. This type of splitting in its incipience (invisible with the ophthalmoscope) shows a most characteristic slitlamp picture. There are so many fibers crossing the fissure (from one lamella to another, if it may be so designated) that these form a wavy design which outlines the area of concentric separation. The wavy lines parallel to each other are due to rows of fibers belonging to a single lamella bridging the separation at right angles to the direction of the fibers. This I believe to be the explanation of this wavy, combed-like appearance, which to slitlamp observers heretofore has seemed inconsistent with or inexplicable on the basis of anatomic lines or of direction of fibers. It is of utmost

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clinical importance that the use of the slitlamp has given insight into this most interesting phase of progression in the development of cortical cataract.

It is not fully understood why lenses show this tendency to fissure formation in the cortex. There have been varied attempts at explanation, such as excessive contraction of the nucleus, retardation in the development of new lens cortex and traction of the zonule fibers.

In certain lenses the nucleus, because of its weight, behaves as a foreign body and, because of a softening of the cortex, gravitates within the capsular bag (morgagnian cataract). In view of this and the fact that relaxation of the zonule fibers in efforts at accommodation still continues at this period of life, it is believable that this constant trauma of the weight of the nucleus on the cortex may initiate the changes. This, in a way, would explain why the incipient lesions of this type are almost always first seen below and on the nasal side.

2. *Senile Nuclear Sclerosis.* The type of senile cataract is determined in a great measure by the degree of sclerosis present in the whole of the lens. When the sclerosis is quite advanced the cataract is of the type known as "nuclear sclerosis," because of the greatly increased density of the nucleus. This increased nuclear density is sharply delimited so that at times there may be a lens within a lens, or one with two foci. The lens presents a very differnt focus through its periphery than through the middle.

In many cases the nucleus may be dark red or even black (cataracta nigra). In these cases there is the same abrupt contrast between the color of the nucleus and that of the cortex. The latter is absolutely colorless. Much to my surprise, I have found cases of this type in which the process was extreme in one eye and there was little coloration of the nucleus in the other. The excessive sclerosis of the lens nucleus in these eyes often causes them to acquire an increase in their refractive power. It is this change that brings on a myopia in an emmetropic person and enables him again to see near objects without glasses (second sight). It is a process of conservation unless the sclerosis becomes excessive and thus reduces the visual acuity by impairing the tranparency of the lens. In uncomplicated nuclear sclerosis, the cortex of the lens is usually free from changes.

3. *Toxic Cataract* (*Cataracta Complicata*). An extremely common type of lens involvement in middle life is that known as toxic cataract or cataracta complicata. Ophthalmologists are familiar with it because of its frequent occurrence in conjunction with retinal detachment, myopia, choroiditis and other degenerative conditions of the eye. It is surprising how often it is found in eyes that fail to show any other pathologic processes. In these one may suspect a low grade choroiditis or some other toxic etiology. A very slight involvement of the lens constituting a serious threat to central vision is a common slitlamp observation.

Its incipiency is characteristically seen under the posterior capsule as a green and red iridescence, possibly due to a thin flake formation or to a slight separation of the lens from the capsule. Its extension is at first subcapsular toward the equator, and then it progresses forward through the lens substance. The slitlamp picture at this stage is most characteristic: a porous asbestos-like change. Here and there one may see vacuoles. When the cataract is quite advanced posteriorly, similar iridescent incipient changes may be seen subcapsularly at the anterior pole of the lens. Owing to its central (polar) position, even a moderate involvement may greatly reduce visual acuity. The vitreous, as may be seen with the slitlamp, is more fluid.

There is no doubt that this common form of cataract is due to an absorption of matter toxic to the lens. The anterior capsule of the lens at the pole at this time of life is about five times as thick as is the posterior capsule, and, in addition, is covered by a protective layer of epithelial cells of equal thickness. The greater permeability of the capsule at the posterior pole, therefore, predisposes that area of the lens to early toxic changes.

The characteristic slitlamp evidences of the incipience of toxic cataract give ample warning. Therapeutic elimination of the constitutional toxic factor may inhibit progression of the cataract.

PREOPERATIVE PREPARATION AND ANESTHESIA FOR CATARACT EXTRACTION

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The operation for removal of cataract is the most important, most serious and most frequently done in the whole range of ocular surgery. Its success or failure means much to the patient. In the one case, sight is restored and the happy patient goes about his business as usual; in the other, vision is lost and an unfortunate individual becomes a helpless burden to family or state.

Preoperative preparation for cataract extraction should be started when the diagnosis is made; if not at that time, then shortly thereafter. Cultivation of the proper mental attitude is as important as the physical preparation.

Old age is not a contraindication to operation. I have operated upon patients past 90 years of age with good results. In spite of the fact that cataract extractions are usually successful, and also that this is generally known, I know of no disease more dreaded than cataract. The mental shock accompanying realization that one has a cataract can not be measured. Therefore, one should spend enough time with a patient to assure him that the outlook is not hopeless; that operation can be done without pain and offers an excellent chance for restoration of vision. Every effort should be made to inspire the patient's confidence. Kindly assurances will do much to quiet normal fears. But always, the question arises: Shall we tell a patient he has a cataract? Kindly and tactful explanations to the patient will usually handle this situation, I believe. For many years I followed the custom of telling some member of the patient's family the true condition, but I do not now believe that this is good practice. In any event, if the patient is not told the true condition, sooner or later another oculist will be consulted and will inform him or some member of the family will impart the information in a garbled, exaggerated manner which will destroy that confidence so necessary between patient and physician. I now make it a point to tell the patient myself. The patient should feel that he wants the operation done, and should not be talked into having it done. A patient fully confident that he will experience no pain, that he can rely on the judgment and ability of the surgeon, and can expect a good result, will invariably act well at time of operation. Occasionally, of course, this does not work so well. For example: Recently, an old patient and friend of mine came to me because of "slight loss of vision, and spots before her eyes." Examination revealed rapidly developing cataracts in each eye. Refraction brought vision to practically normal, and the question then arose as to what and how much to tell this patient regarding the true cause of her condition. I frankly told her the true state of affairs, as kindly and gently as possible. Because she was an old patient and acquaintance, I felt that I could do this. To my amazement, she broke down completely, and on a number of occasions threatened to commit suicide, and I believe would have done so if her family physician and I had not kept her under constant observation. After many conferences, explanations and assurances she finally accepted the situation in a philosophical manner, and is looking forward to the time when, if she does become blind, operation will relieve her.

One presupposes that the immediate preparation for any operation shall include a complete physical examination. Removal of teeth infected at the apex is surely indicated. How much dental treatment is necessary if alveolar disease is present is debatable; this should be left to the judgment of a dentist. It is important that a complete examination of the lungs be made because of postoperative dangers incident to chronic coughs. Complete examination of the urine should also be made. If sugar is present it must be eliminated before operation, either by diet or by the use of insulin. If a true diabetes is present, the patient should be kept pretty well insulinized before operation and during convalescence. Gross sinus infection should be cleared up as nearly as possible. I do not pay very much attention to the tonsils because my experience has taught me that one seldom, if ever, is able to distinguish between a normal and abnormal tonsil in so far as chronic infection is concerned. Those who have frequent tonsillitis should have

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford, as part of a Symposium on "Cataract."

a tonsillectomy. Hypertension is a real menace so far as operative and postoperative complications are concerned. If the tension approximates 200 systolic and over 100 diastolic, one pint of blood should be removed immediately prior to operation. This will usually keep the pressure down during convalescence.

Preparation of the eye should include a thorough slit-lamp study and estimation of intraocular tension. If chronic glaucoma is present, a preliminary iridectomy should be done, or some other type of operation to reduce tension. It is an excellent plan to apply a test bandage some days before operation. I believe this gives as much, if not more, information regarding sterility of the conjunctival sac than do cultures. However, I always have a culture made the day before operation, and if pyogenic organisms are present in appreciable numbers, operation is deferred, and the conjunctival disease treated. Purulent dacryocystitis calls for operation. Chronic conditions of the gastro-intestinal tract, and diseases of the kidney should be cleared up in so far as possible. However, it is well to remember that many of these conditions are incurable and will not as a rule offer a serious barrier to operation.

Hospitalization is desirable. At various times I have operated in the home; never in the office. The patient should be in the hospital at least twenty-four hours before operation, and if possible, forty-eight hours. The strangeness of hospital routine is severe on elderly people generally, and it is well to have them accustomed to changed surroundings before bandages are applied. A full tub bath is desirable, though not essential. The hair and scalp should be thoroughly scrubbed, and, of course, the entire face cleansed the day before operation. At this time the eyebrow is shaved and the eyelashes clipped. A 25% solution of argyrol is instilled into each eye every four hours, except at night, during the twenty-four hours preceding operation. The night before operation 2 grains of phenobarbitol are given, and two hours before operation one grain of phenobarbitol is given, repeated in one hour. Recently, I have been using allonal and I like it better than phenobarbitol, as the action is more prompt and does not last as long. Opium derivatives are not used because of the danger of vomiting. Evipan has been recommended as a preliminary. I have not used it. Morphine and hyoscin in combination has been tried but its action can not be relied upon. I operate in the regular hospital operating room on an ordinary table used for major surgery. There may be some objection to transferring a patient from a cart to the operating table, and back from the table to the cart and to bed, but I have never had an accident as a result of this procedure. I believe, however, it would be more desirable to have a special bed which could be used as an operating table, and from which the patient need not be moved. It is well to have accustomed the patient to the use of a speculum by inserting one on several occasions before entrance to the hospital.

Nothing should be done to a patient with very poor vision, or one who is blind, without first telling him exactly what one is going to do, and one should repeatedly assure the patient that the operation will be painless.

Anesthesia and Preparation of the Field. Much has been said and written regarding types of anesthetics. Cocaine has always served me well; I have never seen an untoward reaction from its use, and until I have some excellent reason to change to another drug, I shall continue to use it. Too often we use new types of anesthetics simply to try them out. I consider that complete and perfect anesthesia is one of the most important features of this operation. An outstanding contribution to the success of the operation is the development of akinesia. Immediately upon arrival on the operating table, the 7th nerve is blocked according to the method described by O'Brien. If from 3 to 5 cc. of novocain are used for this purpose, akinesia never fails to appear. I prefer the method of O'Brien to that of Van Lint, because there is no danger of lid edema to cause operative complications. A 5% solution of cocaine, previously sterilized by boiling, is instilled into the eye four times at three-minute intervals, and with the last instillation a drop is instilled into the other eye. Following the last drop of cocaine several drops of 1-1000 adrenalin are used. Immediately over the insertion of the superior rectus muscle two drops of novocain are injected for the bridle suture, and immediately before operation 1.5 cc. of novocain with 1-100,000 adrenalin is injected into the retrobulbar region of the orbit through

the lower lid. Scrubbing the area with soap and water has been discontinued except on the day prior to operation. Two-thirds of the face is painted with tincture of merthiolate up to and including the roots of the eyelashes. The conjunctiva is flushed with 4% solution of boric acid. No other chemicals are used. Immediately after the corneal incision, the flap is lifted and one drop of sterile cocaine is instilled into the anterior chamber.

General anesthesia is rarely required. However, if occasion arises for its use, I have found avertin as a basal anesthetic, supplemented by nitrous oxide, very effective. It should rarely be used.

Preparation of Instruments and Operator. All instruments used in the operation, including the cataract knife, are boiled in triple distilled water. I have found that boiling does not dull the edge of the knife. If sterilization of sharp instruments by other methods is effective, then why not sterilize all instruments in the same manner? The surgeon should wear sterile gown, mask and cap. There can be no real objection to the use of sterile rubber gloves. Well-fitting thin gloves do not alter the sense of touch, and the only answer to objections to their use is to ask: "Would one permit his abdomen to be opened by a surgeon who did not use gloves?"

The patient's entire body should be covered with a sterile sheet, the head resting upon a sterile table cover. I then use a sterile sheet 3x3 feet in size in which a fair-sized opening has been cut and hemmed. The opening in the sheet is placed over the eye, the patient's head raised and the sheet tucked beneath the patient's head and neck. This insures a sterile operative field.

Every effort possible should be made to have the operating room, instruments, operator, and assistants completely ready for operation before the arrival of the patient. I have seen much needless fussing and fuming in the operating room due to last minute preparations, after the patient's arrival. To say the least this does not contribute to the proper frame of mind of either patient or operator. Loud talking, clanging of pans and moving things about in the operating room disturb the tranquility of both patient and operator. Absolute silence must be maintained, and only the surgeon should converse with the patient.

Again I wish to emphasize the importance of keeping the patient fully informed of what is going on and just what to expect at all times, and nothing should be done about the eye without first telling the patient what to expect.

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CATARACT INCISION, IRIDECTOMY AND IRIDOTOMY

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There is insufficient time in this symposium to give a complete history of the origin and gradual development of the incision which is the subject of this paper.

Couching for cataract, or depression, may have been practiced centuries before the dawn of the Christian era, although the first description of the operation is credited to Celsus. History records several instances of the lens having been removed from the anterior chamber following attempted depression.

Daviel about the middle of the 18th century (April 8, 1747) was perhaps the first to attempt extraction of a cataract situated in its normal position. A few years later Sharp of London used a narrow, sharp-pointed knife curved like a bistoury. A century later Von Graefe devised his narrow knife with parallel cutting edge and back. The incision first advocated by him would almost always allow the iris to become incarcerated in the wound. After a couple of years' practice, he changed the point of puncture and made a virtue of the necessity of iridectomy by advising a wide iridectomy. His "modified linear extraction" soon became a standard for the great mass of surgeons.

The incision, at first made in the lower half of the cornea, was soon changed to the upper section because the firm pressure of the upper lid and the concave cartilage acted like a splint in covering the incision, keeping the wound margins approximated, with less gaping and consequently less danger of infection.

The incision originally made almost wholly in the clear cornea, sometimes only a little above the center, separated a large area of nonvascular tissue from its nutritive supply. More recently

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

there has been a tendency to make the incision toward the limbus, or entirely outside the clear cornea, but concentric with the limbus. This location gives a longer, freer opening, nearer the nutritive vessels, and the conjunctival flap, which is quickly agglutinated, utilizes the best protective tissue to close the wound promptly and to prevent displacement of its margins. A well placed incision has much to do with the success of the operation, although skill and experience frequently effect a good ending in spite of a very bad beginning. It is essential to have good light, good vision, a good knife, and a steady eyeball. The eye in the orbit has one point fixed, namely, the center of rotation of the eye. To prevent rotation of the eye two more points should be fixed. This can be done by the double fixation forceps, by two fixation forceps, or by one fixation forceps and a bridle stitch through the superior rectus. The stitch is of great value in rotating the eye downward.

The size of the incision is important; a large incision is less dangerous than one too small. The length of the cut is sometimes varied, the younger patient having a smaller cut than the older patient who requires a more extensive opening to allow for the extraction of the larger nucleus.

The various methods of intracapsular extraction usually require a slightly larger incision, as a small incision tends to rupture the capsule. The incision may even embrace one-half of the corneal circumference to allow for more freedom of manipulation.

Either episcleral or scleral fixation may be used. In the episcleral fixation, forceps with slightly dulled teeth should be utilized. The intent is to obtain a firm hold not too near the cornea. The forceps should be opened 5 or 6 mm., held perpendicular to the eye 1 mm. from the lower limbus, and a strong pressure be effected in order that both the conjunctiva and the episcleral tissue may be grasped. Then a test should be made to see that a firm hold has been obtained. If the conjunctiva only is seized, it is very easily torn.

The scleral forceps are used to enter the sclera. They are opened only 2 mm. and are placed near to the limbus; they are pressed firmly and closed at the same time. They give a perfect fixation. Tilting the handle of the forceps as far as possible toward the nose makes less strain on the delicate conjunctiva. Then resistance to the thrust of the knife is made, not by pulling but by pushing.

Jackson says the tendency to push the eye around by the forward thrust, is best controlled by placing the fixation forceps just below the point chosen for the counterpuncture. A good section should lie just posterior to the limbus and in the conjunctiva throughout its length.

The conjunctival flap should be about 1 to 2 mm. wide at its narrowest part—i. e., the point of puncture and counterpuncture—and 4 to 5 mm. at the summit. Usually for the intracapsular extraction, the summit is less, or it may even end with the incision in the cornea itself. Generally the incision is begun about 1 mm. above the horizontal meridian. The knife is started 1 mm. within the border of the limbus and is directed toward a corresponding point on the nasal side but 1 mm. inside the clear cornea, which brings the counterpuncture 1 mm. within the border of the limbus. Most men advance the nasal incision more on the thrust and endeavor to complete the incision with the heel of the knife on the pull, or at least complete the scleral cut in these two movements. After the severance of the sclera, the edge of the knife is turned forward to finish the conjunctival cut with as much or as little flap as may be desired. If a corneoscleral stitch has been placed it will be necessary to come out exactly between the two parts of the stitch, which is not difficult if the last conjunctival cut is made slowly. A pause in carrying the knife across the anterior chamber may allow the iris to fall forward with the escape of the aqueous, and the knife may penetrate a few fibres or even the entire thickness of the iris.

It is better to complete the incision than to attempt withdrawal unless it is intended to postpone the operation for a day or two. An incision too near to the ciliary body causes almost immediate pain and bleeding more or less severe. Sudden bleeding with a normal cut is usually due to the fact that the patient has stopped breathing and is holding the breath. Corneal incisions do not heal as readily nor as early as those made in the limbus. The corneal wound may reopen or remain open long enough to permit an ingrowth of epithelium that may

spread over the entire anterior chamber and lead to secondary glaucoma.

Various forms of conjunctival, scleroconjunctival and corncoconjunctival sutures have been enthusiastically described and employed by various operators abroad and in this country. Each of the various forms of suture is made with the same object in view, namely to lessen the danger during operation and prevent opening of the wound subsequent to the operation. One author enumerates the advantages of the scleroconjunctival suture as follows:

1. In loss of vitreous, it allows immediate secure closing of the wound.

2. In impending loss of vitreous at any stage after the section, it permits the operator to keep the wound open as widely or as little as necessary in order to complete the operation.

3. It enables one to clear away all the visible lenticular debris with safety.

4. It secures immediate and firm coaptation of the wound as soon as the suture is tied.

5. It favors quick reestablishment of the anterior chamber, and reduces chances of secondary prolapse of the iris.

6. It is valuable in postoperative delirium or vomiting.

7. It permits prompt healing with less scar tissue and less astigmatism.

My own observations have led me to believe that the average operator, in placing a corneal suture after the incision, incurs a greater risk from trauma and repeated attempts than by the omission of the suture.

Single or double suture of the flap, loosely tied and laid aside, seems the more general custom. It is only fair to state that prolapse does occur at times even with sutures.

Knapp reporting his fourth hundred successive intracapsular extractions, favors a broad limbal incision with a conjunctival flap. He does not use a suture, because he is not convinced that it would help in this type of operation. Statistics of vision, for example, 6/10 vision, do not explain that one patient has good vision of 6/10, while another has 6/10 with disagreeable lights and annoyance, due to coloboma and destruction of the sphincter.

In the treatment of the iris three things should be remembered:

1. The pupil should be large enough to permit the passage of the lens. This sometimes requires that the sphincter of the iris be cut, but usually cocaine and adrenalin dilate the pupil sufficiently. Safar thinks homatropine is essential, others use euphthalmine. If the iris remains intact this is the so-called simple extraction.

2. The iris should be treated so as to prevent a prolapse. A complete iridectomy does this, while at the same time, it provides a large pupil for the passage of the lens. A basal buttonhole, peripheral iridectomy which does not cut the sphincter is even better as a preventive of prolapse, but worse than useless as an aid to the passage of the lens.

3. For the best results the pupil should be round, central and active.

The peripheral iridectomy meets fully the second and third requirement, while frequently the sphincter must be cut to satisfy the first.

Peripheral iridectomy has but one indication, namely to avoid a prolapse of the iris. For example, a case without iridectomy, one or two days after the operation, by a sudden increase of pressure due to coughing or straining causes the wound to open suddenly; the tendency is to relieve the situation by the route of least resistance. The aqueous will not pass around the iris, but moves by the direct route and carries the iris with it. With peripheral iridectomy, the posterior chamber empties through this small hole.

Chandler of Boston was one of the first men to do the buttonhole peripheral excision, but Hess popularized it. In performing a peripheral iridectomy, the Hess forceps opened about 1 to 2 mm. should be applied perpendicularly into the wound and closed on the iris. The forceps are then withdrawn and the iris incised close to the forceps. It is necessary not to cut too deeply lest a total coloboma be produced.

If the complete iridectomy is decided upon the excision of the iris should be made as slender as possible. A small coloboma averts prolapse of the iris as certainly as does a large one, and causes less confusion from dazzling. If the pupil is not round, the operator should replace the iris, then enter with slender iris forceps, open 2 mm. or less, and close, grasping the iris not at the very margin as this is too friable, but back 1 or 2 mm. where the stroma is firmer. He

should pull it out and as soon as the iris can be seen, cut close to the forceps and at right angles to the corneal incision. In replacing the iris, the spatula should lie parallel to the surface of the iris at all times. The edge of the spatula turned toward the iris holds better than the flat surface. The operator should stroke the iris gently from the periphery toward the pupil, removing the instrument from the side and being careful to touch neither the anterior surface of the vitreous nor the posterior surface of the cornea, as this may result in prolapse of the vitreous or a cloudy cornea.

Gradle, reporting two hundred extractions divided evenly between extra and intracapsular methods, performed an iridectomy in all but one case. The following table is taken from his report:

TYPE OF IRIDECTOMY

Operation	Extracapsular	Intracapsular
None performed	0	1
Preliminary	25	8
Complete	70	46
Peripheral	5	45
Total	100	100

Preliminary iridectomy was performed in cases where useful vision was impaired and where there was unduly slow progress to surgical opacity—also in cases of bad surgical risk from lack of self-control. Elschnig makes a small peripheral iridotomy at 12 o'clock with DeWecker's scissors.

O'Brien says for the usual uncomplicated case, peripheral iridotomy or iridectomy is just as efficient in preventing prolapse of the iris as is complete iridectomy and the cosmetic result is much better. If an iridotomy is performed there is not so much liability of incarceration of the lens capsule in the wound. If the sphincter muscle of the iris has been relaxed, and the iridotomy is small and peripherally placed, there is practically no danger of rupture of the iris during the extraction of the lens. In making the iridotomy the anterior flap of the wound is lifted with fine forceps and the iris exposed to view, then with sharp, pointed scissors, a small snip is made in the upper iris periphery. One must not go too deep with the point of the scissors, otherwise the anterior border layer of the vitreous may be opened and a vitreous prolapse may ensue.

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SENILE CATARACT

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That part of the symposium dealing with the removal of senile cataract within its capsule by pressure, as in the Smith method, or some of its modifications, or by the suction or Barraquer method or some of its modifications, has been assigned to me.

I will assume that all operators prepare the patient in practically the same manner. Complete anesthesia of the eye is affected and the incision made in quite the same manner whichever method of removal of the cataract is selected.

Some prefer a corneal incision; others a conjunctival flap. Some insert two or more conjunctival sutures while others do not use sutures.

If approached in the proper manner and enough time is given to the technic, the removing of a senile cataract by any method can be mastered, because material for obtaining practice in operative technic is plentiful and easily obtained. To master the technic, one method would be to witness many operations; but merely observing a good operator and not operating would

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

be quite like watching a good pianist and not practicing.

When operating for cataract by any method, it is imperative that lid pressure, as far as possible be removed from the eyeball, and this is best accomplished by the use of lid hooks.

Some operators prefer a full iridectomy; others a small peripheral iridotomy. One of the two is imperative and should be done before inserting the conjunctival sutures. Those who prefer a full iridectomy use 1%. atropine, two times, one-half hour apart, the night before the operation and one installation on the morning of the operation; no atropine is used after the operation. Those who prefer a peripheral iridotomy use 5%. euphthalmine in 5%. of cocain ointment until dilatation is obtained. The preparation of the patient is begun about one hour before the operation, and the operation is performed as soon as the pupil is fully dilated. When the operation is finished 0.5%. eserine ointment is spread between the lids to contract the pupil.

Smith Technic: Removal of the lens by the Smith method is accomplished by pressure upon the lower edge of the cornea and Figures 1-2-3-4-5-6-7-8 describe the technic better than words. Complications will be discussed by others.

Suction Practice: One can become quite skillful by practice as described in Figure 9.

The end of a large spool is covered with black cloth and a round hole made in the center. A piece of transparent cloth is placed over the black with a slit to represent the incision. A thread is inserted to represent a conjunctival suture and looped for exit of the lens. A hole in the spool is filled with cotton to within one-quarter inch of the top. On top of the cotton is placed the lens of a freshly-killed chicken.

The edge of the incision (Fig. 9) is picked up with Nugent's forceps, exposing the chicken's lens, and the suction tip is placed evenly upon it without using any pressure. The operator's tongue is placed on Nugent's oral valve (C) giving suction and causing the lens to adhere to the suction cup. The suction cup should remain in contact with the lens for about eight seconds before any traction is made. When the lens is dislocated below and comes forward the suction is released, by removal of the tongue from the oral valve (Fig. 10) and the operation

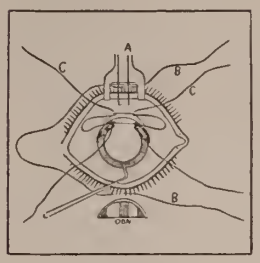


Figure 1.

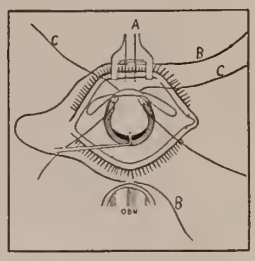


Figure 2.

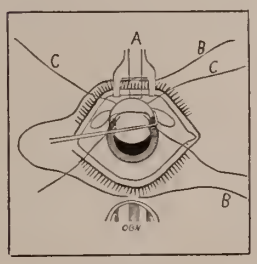


Figure 3.



Figure 4.



Figure 5.

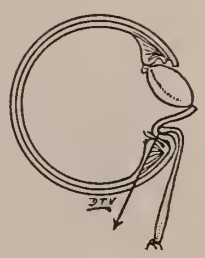


Figure 6.



Figure 7.

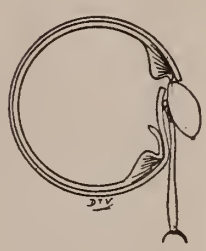


Figure 8.

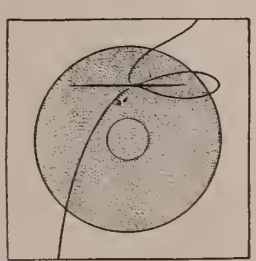


Figure 9.

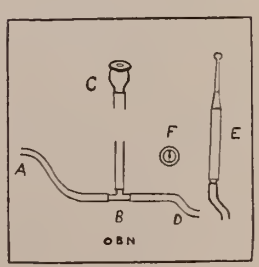


Figure 10.

is finished by the Smith method as a tumbler (Fig. 6, 7, 8).

When one becomes proficient or is ambidex-

trous enough to hold the erisfaco in one hand and use pressure with the other he can remove the lens with the sucker in one hand combined with constant pressure with the other, either in the upright position or as a tumbler, without removing the sucker from the lens. This technic is quite the same as advocated by Professors Barraquer and Elschnig, Drs. Vila Cora Nugent, Wolfe, Green and others, and is considered by many as being the last word in technical skill when using that method. It naturally requires much practice and a certain amount of ambidexterity which can be gained by practice as illustrated in the pictures.

The operation recommended by those who are not ambidextrous would, naturally, be the Smith method with pressure, or dislocating the lens below with the suction (Figs. 11-12) or with capsule forceps as recommended by Knapp or as in the Smith method, 6, 7, 8.

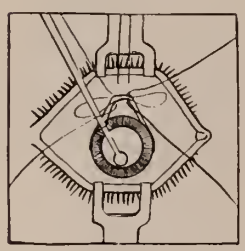


Figure 11.



Figure 12.

The greater part of Fisher's new suction method can be done with one's most facile hand, eliminating ambidexterity and also excessive pressure upon the vitreous, as in the Smith operation, and reducing the number of ruptured capsules as in the Barraquer or Elschnig method on account of non-ambidexterity. The operation is then finished by the Smith method as a tumbler (Figs. 6-7-8). This does not apply to Professor Barraquer or others who are ambidextrous.

Ruptured capsules, vitreous loss, iris prolapse and postoperative inflammation will be reduced to a minimum and a needling or second operation, which is not without danger, will be eliminated except when a capsule is occasionally ruptured. The average time in the hospital will be lessened, the vision better and the operation can be done successfully before the patient is blind. The pictures are self-explanatory.

THE ELSCHNIG TECHNIC FOR LENS EXTRACTION

HARRY GRADLE, M. D.
CHICAGO

The name Elschnig has been applied to the type of intracapsular extraction that really is a combination of various technics originated by this, that, and the other man; I think there would be about six different names. Elschnig combined them all into the operation known by his name. In the intracapsular operation in which forceps are used, they may be applied either at the upper margin of the lens, with consequent dislocation of the lens and removal by pressure and traction, or at the lower part of the lens with dislocation and partial traction and pressure. The Elschnig technic uses the lower pole for very definite reasons.

The preparation is much as Dr. Stevenson has outlined. The incision should be large, about two-fifths of the cornea, and should lie in the vascular portion of the limbus, and there should always be a conjunctive flap. Von Graefe said that no incision into the eye should be made except under the conjunctiva, and I am sure that holds true. The incision must cover two-fifths of the periphery of the cornea. Then conjunctival sutures are placed—one, two or three—through the conjunctival flap and the upper portion of the conjunctiva, tied loosely and laid aside. The ideal operation is with the round pupil, but that is not always possible for the pupil may not be dilated sufficiently to permit passage of the large nucleus. In many instances it is unduly difficult to grasp the capsule with the iris in position, and then an iridectomy must be performed. The question arises whether this should be completed before the extraction of the lens or subsequently. If it is to be complete, it is necessary to do it before the lens is extracted: but if a peripheral iridectomy or iridotomy, it may be done at the conclusion of the extraction. True, it is somewhat more difficult after the lens is out, and the danger of injury to the vitreous is somewhat greater. On the other hand, the end results are about the same. The peripheral iridectomy or iridotomy can be employed only if the pupil dilates sufficiently to permit passage

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1934, at Rockford.

of the intact lens. In that case the capsule forceps of the type devised by Elschnig are introduced by a side motion past the equator of the lens and at the inferior pole. Pressure is made backward with the tip of the forceps tending to push the lens backward and the capsule is grasped. Of course it is not possible to do so in large swolllen lens, because the forceps will glide off. But when it is grasped lateral rocking motions are used for about twelve seconds in order to break the lower zonular fibers. During this time no pressure is exerted by the hook on the outside of the eye, but as soon as the lower half of the lens is free, pressure should be started below the limbus. The purpose is to force the lower portion of the lens upward and forward.

The ideal operation is tumbling of the lens, and this introduces safety into this form of extraction. The capsule forceps are held in situ but instead of pull, the larger force is push—80% push and 20% pull. If you are not sure the lens dislocation is complete the rocking motion is continued. The lens should tumble with the lower pole presenting first in the wound. As the lower pole comes up the upper pole holds back the vitreous protecting against a prolapse mechanically. If we are dealing with an extremely fluid vitreous, and if vitreous prolapse occurs during operation, it occurs just above the equator. The push is then continued and the more the lens approaches delivery, the more push, the less pull, until at the point of delivery the forceps are doing nothing but holding the lens in position with no traction. This is practically all carried on throughout with the hook outside the eye.

At this point, if you have not performed the peripheral iridectomy or iridotomy the iris may be pushed back into place. It may be done afterward, though I think it is a little more safe to do it before. As soon as the lens is delivered and the iris incised, the stitches are tied and then a spatula is inserted to smooth the pupil. Eserin is instilled, one drop 0.5% at the time the stitches are tied, when the iris is smoothed, and finally when the lid is closed. The iris should be smoothed with the flat of the spatula, not the point. It is much easier to get the iris in position after peripheral iridectomy than complete. The end results are better from the standpoint of appearance, and lack of circles of diffusion upon the retina. Approximately 50 to 60% can be performed through a round pupil. In the remainder, I have found it necessary to do a complete iridectomy.

What percentage of cataracts can be removed intracapsular? We use Elschnig's classification —plus, a lens removed completely within the capsule; plus-minus, where the capsule breaks at the point of delivery so that practically all is removed; and minus, when it is impossible to remove the lens in capsule. In my own cases I find 60%+, 20%±, and 20%—.

I think this type of delivery is the safest intra-capsular operation that there is. But how does it compare with extra-capsular operation as regards safety? In my own rather limited cases, I found the loss of vitreous slightly greater in the extra-capsular operation. Possibly this was because we selected our intra-capsular cases a little more carefully than the extra-capsular. I also found there was a slightly greater tendency toward prolapse of the iris in the intra-capsular than the extra-capsular. Of course, after intra-capsular, needling is eliminated, whereas with the extra-capsular needling has to be performed in many cases. In other words, the intra-capsular eliminates the necessity of the second operation. As regards the end results of vision, it is practically the same. As regards final astigmatism, practically the same—the average astigmatism after intra-capsular is 2.2 diopters, after extra-capsular 2.21. The stay in the hospital after operation is markedly less after intra-capsular. There is a more rapid healing, less subsequent irritation. The final results have always seemed exactly the same. Occasionally detachment of the retina occurs after any cataract operation; it seems to occur as frequently after either.

So taking it by and large, the intra-capsular offers a few advantages definitely over the extra-capsular. However, it is more difficult to perform, but for a person who operates regularly that small difference in difficulty plays no great role. The patient gains definitely by a shorter

stay in the hospital, by less irritation of the eye, and by elimination of the second operation, the necessity for which is present in a fairly large percentage of cases of extra-capsular operation.

EXTRACAPSULAR EXTRACTION OF LENS

HARRY WOODRUFF, M. D.

JOLIET, ILLINOIS

I thank the two previous speakers for leaving such a fine opening for the discussion of the extracapsular operation. It is not necessary to go into the description of the operation, of course—the preparation, the question of whether iridectomy or iridotomy should be done, the sutures, etc., apply just the same in both. It seems to me that the advocates of the intracapsular operation, while they tell us that the operation is adapted especially to immature cataracts in people beyond the age of 55 or 60, do not always follow their own advice. Of course in an audience of this kind there are probably many eye doctors who are doing only a few cataract operations. They cannot expect to follow a complicated technic or to change their technic frequently, because they have not the material upon which to work and have not the advantages of large clinics. They have to use their best judgment. Nicholas Senn once said that the best surgeons were those who use the best judgment. We might have great technical skill and yet not always use good judgment.

It seems to me that the question has been pretty well determined so far as intracapsular and extracapsular operations are concerned, and I would say something like this. If you have a patient beyond the age of 55 or 60 with an immature cataract you have an ideal case for some form of intracapsular operation. You have conditions in which the capsule is less apt to rupture and the suspensory ligament is most apt to give way. On the other hand, in a patient of that age, with a mature lens it is unnecessary. You can remove a piece of the anterior capsule by forceps, or if the lens dislocates, it can be removed in capsule. Or you can use a cystitome, preferably making a peripheral opening so as to avoid the bands of capsule which are difficult to needle. So we are now able to take care of a mature or immature cataract in people beyond 60. If it is an immature lens in a patient under 55, you have a more difficult problem because you have a patient who is too young for an intracapsular operation, and if the condition has reached the point where the patient's vision is so poor that he is disabled from performing his business affairs, you must operate on an immature cataract which must be by the capsulotomy method to be consistent, or wait for it to ripen. You rarely hear of ripening cataracts now. You hear of the Homer Smith method of needling. One of the objections to other forms of ripening is that they only ripen the outer layers of the cortex. I think probably the preferable way of handling these patients under 55 is by the capsulotomy method with some form of anterior chamber irrigation after the suture has been put in place. The risk is so much less of viterous prolapse if the suture is tide, than if you attempt irrigation without tying the suture.

I believe we have really arrived now at a pretty clear understanding of when to perform an extracapsular and when to perform an intracapsular operation—if we will only be consistent. There is absolutely no complication whatsoever except the complication of the capsule in performing the operation at any age, because you can completely remove the cortex and have only the capsule to deal with, which really is not a formidable affair. You have needling to consider, and I think the percentages given are questionable unless you do some form of needling at the time you do the extracapsular operation, which is not at all difficult or dangerous.

I would like to call attention to a suture which I think is quite an ingenious affair. It has the advantage that you can tie the suture with eyelids closed. You know that if you have prolapse of vitreous you are not anxious to keep that eye open—you wish to close it tightly and with this suture, suggested by Berens of New York, this is possible.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

THE PREVENTION OF COMPLICATIONS IN THE CATARACT OPERATION

SANFORD R. GIFFORD, M. D.

CHICAGO

There is only time to speak of the most important complications of the cataract operation. It is by their prevention, however, that our operative results will stand or fall and no detail which will prevent any one of them in one out of a hundred cases is too minute to be worthy of our serious consideration.

The once-dreaded complication of purulent infection is now so rare that many ophthalmologists have never seen a case. It seems likely, however, that many cases of so-called postoperative iridocyclitis, which all of us have seen, are really due to organisms introduced into the wound at the time of operation. All we can do to prevent both types of infection is to preserve the most careful asepsis during the operation, to postpone operation until the conjunctival sac is clean, and to insure closure of the wound so that infection may not occur in the first few days after operation. Aside from meticulous technique in the preparation of instruments, we must carefully avoid touching the skin or lash-border with the point of any instrument which enters the eye, a detail by no means always observed. We may also refrain from touching the entering tips of our instruments with our own fingers, the sterility of which, unless we use gloves, can never be guaranteed. Instruments should be dry, so that no fluid runs from the handles into the eye. Irrigation of the anterior chamber, if performed, should include only the operative field and not the skin.

Preliminary cultures of the conjunctival sac are of value only if very carefully conducted. It is usually sufficient if blepharitis and chronic conjunctivitis are first controlled, and if every case is given a mild antiseptic to instill several times a day for a week before operation. Infected lacrymal sacs must, of course, be removed or destroyed some weeks before operation and it should be a routine to investigate the lacrymal passages in every case. If these precautions are observed, frank infections will be exceedingly rare and iridocyclitis will be reduced to a minimum. Those cases due to retained lens material will be discussed by Dr. Cushman.

Expulsive hemorrhage is a complication fortunately rare, but one justly dreaded, since it means loss of the eye. In many clinics such as that of Elschnig at Prague, it is the custom to withdraw 300 to 500 cc. of blood from every case with high blood pressure to prevent this complication. From what I can learn, however, this procedure can seldom be of real value, since it is followed by a vasomotor reaction which sends more blood to the peripheral circulation at once. We can often reduce blood pressure, however, by preliminary medical care and a few days of bed rest before operation. The hemorrhages which follow immediately upon expression of the lens are exceedingly rare. If one has taken the ocular tension and knows that it is not elevated, all that can be done to prevent these is to eliminate all unnecessary pressure and traumatism and to finish the incision and express the lens slowly, so that the tension may not be too suddenly reduced. Usually, however, the hemorrhage occurs some hours after the operation. What has happened is that the anterior chamber has been reformed and due to a slight movement of the patient or merely to the pressure of the aqueous itself, the wound is reopened. The sudden reduction of tension places a strain on vessels previously traumatized by the operation and the hemorrhage occurs. Here there is a preventive measure which is of the greatest importance. This is a good conjunctival flap, held by carefully placed stitches, which will keep the wound from re-opening. The form of flap which I regard as safest will be described later, but there are several forms almost equally useful for this purpose.

I regard another measure, usually not considered, as also of great importance. This is the elevation of the patient's head for the first few days after operation. Whether one operates in bed, as I prefer, or has the patient transferred to bed on a stretcher previously placed under him, it is always feasible to elevate the upper part of the bed to an angle of 15 or 20 degrees immediately after operation, and to leave it so for the first few days. This certainly tends to lesson congestion of the head and even the smaller late hemorrhages into the anterior cham-

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Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

Department of Ophthalmology, Northwestern Medical School.

ber, which usually occur during sleep, are, I believe, much less frequent when the patient is thus elevated.

A more common complication than those previously described is prolapse of the iris. Here one's whole method of operating comes into question and the principles of iridectomy or simple extraction will enlist adherents on both sides. The position of one who is discussing the prevention of complications is, however, a simple one. By operating for senile cataract without any iridectomy we are simply courting iris prolapse. Even if it occurs but once in a hundred cases, this is too often, if it can be prevented. One's only conclusion must be that if he wishes to prevent it, he will perform either complete or peripheral iridectomy. The latter will be preferred in younger persons with pupils which dilate fully and where the iris is easily replaced after the lens is removed. It may be said that a small peripheral iridectomy offers practically the same insurance against iris prolapse as a complete one and that it is not necessary to instill eserine to prevent prolapse when peripheral iridectomy is employed. In performing it, I prefer a sharp iris hook with which a few fibres at the iris root are pulled out and cut off very close to the hook, the method of Kalt. It is performed after expression of the lens, as when performed before, the lens tends to be forced into the new opening rather than through the pupil. Even after iridectomy, however, either peripheral or complete, prolapses do occur. They occur, as hemorrhages occur, when the chamber is refilling and suddenly re-opens. Here again, a well sutured conjunctival flap is our best preventive measure. I do not regard the bridge flap as offering proper insurance in this respect, unless sutures are placed in it fairly near the limbus. Without these, the wound is held only by the tension of a long flap of conjunctiva which is slight.

A very safe form of flap is the one described by Kuhnt for covering penetrating wounds and first used for the cataract operation by Van Lint. With very sharp scissors, the conjunctiva is undermined at the limbus well back to the upper fold. The denser band at the limbus must be included, and the flap must be so loose as to slip down over half the cornea without the slightest tension. It circumscribes the upper half of the limbus. Two stitches are placed through the flap and through the bulbar conjunctiva below and one turn of a surgeon's knot is placed in each. The loops are drawn back so that plenty of room is left for the incision. One is now free to devote his whole attention to the incision which is easily visible, and may be placed very exactly at the limbus. There is no danger of making it too deep, as when one is trying to make a flap with the knife. At the close of the operation the sutures are tightened till the flap covers the upper third of the cornea, and the knots are completed. The wound is now really closed, and if the patient vomits, coughs or even gets out of bed, it remains closed. The stitches are left in for 5 to 7 days, and after their removal the flap slowly retracts to its original location at the limbus.

Undoubtedly the most important complication of the cataract operation is loss of vitreous. I was brought up to regard the loss of even what is politely known as a bead of vitreous (the beads of some operators being more like marbles) with holy horror and have never gotten over the sinking sensation in all the viscera which attends it when it does occur. In certain cases with fluid vitreous and hypermature cataract with a defective zonula it is unavoidable.

The prevention of vitreous loss is nearly always possible in normal cataract cases and depends upon a number of essential precautions. Most important of these are perfect anesthesia and akinesia, so that squeezing on the part of the patient is absolutely eliminated. Retrobulbar injections offer perfect anesthesia, but are attended with such marked hypotony that it is sometimes difficult to express the lens if one waits too long. In the intracapsular operation, however, it seems advisable and this hypotony I have always felt was one reason why Elschnig so seldom lost vitreous. In most cases subconjunctival injection of two drops of 4% cocaine at the sites of fixation and incision followed by a wait of 4 minutes will give perfect anesthesia. Akinesia may in many cases be unnecessary but it can never be foretold which patient will squeeze, and there is no valid reason for not employing it in every case.

To avoid undue pressure in removing the lens by any method the incision must be large enough, at least ⅔ of the corneal circumference.

If not large enough it must be enlarged by one snip of sharp scissors at either angle of the wound. For the intracapsular extraction it must include almost half the cornea. In the extracapsular method it is almost equally important to have a large enough capsulotomy. If the lens does not present at once on pressure with the hook, either the corneal incision or the capsulotomy wound, or both must be enlarged before the expression is completed. The lens must slip out easily or vitreous is almost sure to follow it. The expression must be steady and slow enough so that the lens does not come out with a rush. The same is true of the incision, which after rapid puncture and counterpuncture, may be finished more slowly and with almost no pressure by the fixation forceps. It is better to leave a few flakes of cortex than to make pressure after the lens is expressed or to go in for them with a spoon. Irrigation is safer than this, but the stream must be directed away from the vitreous, as I have seen vitreous lost during irrigation.

In the hands of the best operators, vitreous loss by the intracapsular method is reduced to a very low percentage, as low as that of other operators by the extracapsular method. But there can be no doubt that it is more frequent by the intracapsular method as employed by the occasional operator or the one who is learning the method. And one must weigh this disadvantage with its undoubted advantages before employing it in a particular case. Certainly most of us will agree that the intracapsular method is especially dangerous in certain types of case. Persons past the age of 70 are very apt to have partially fluid vitreous and hence it is especially dangerous here. In high myopia the same contraindication exists. Below the age of 55 it is often impossible as the zonula is too tough, and the pressure required to break it entails a definite danger of vitreous loss. Its special indication is in persons between the ages of 55 and 70 with immature cataract.

With either method, a speculum which exerts no pressure on the globe is necessary. One should try the speculum and if raising it allows the eye to sink backwards, it is too large and must be held up by an assistant during and after the expression of the lens. Canthotomy is always useful in reducing tension of the lids when the palpebral fissure is short and has been employed by some operators such as Axenfeld in every case. A good speculum should exert no pressure but many operators prefer to have the lids held open by hooks or sutures through the lids to avoid any chance of pressure.

Vitreous is occasionally lost at the first dressing, but this can always be prevented. If this dressing is postponed for 4 days till the wound is healed it will almost never occur. Lest it should, however, one should very carefully instill one or two drops of cocaine in the lower cul-de-sac before opening the eye, so that squeezing will not occur. No pressure should be used, of course, on the upper lid.

A rigid shield should be part of every cataract dressing and it is surprising to find this simple precaution neglected by some operators. This shield of my father's may be made to fit anyone and a hole may be cut for the other eye without destroying its architecture. It is worn for 2 or 3 weeks after operation, the inside dressing being dispensed with after the first week.

SUMMARY

1. A well sutured conjunctival flap will often prevent hemorrhage, prolapse of iris and late loss of vitreous.

2. Some form of iridectomy is usually essential in preventing complications, except in soft cataract of children or traumatic cataract below the age of 40.

3. Pressure should be minimized, especially by ample corneal incision and capsulotomy.

4. Cases should be carefully selected for the intracapsular operation.

ENDOPHTHALMITIS PHACOGENETICA

BEULAH CUSHMAN, B. S., M. D.

CHICAGO

The term endophthalmitis phacogenetica was first used by Straub in 1919, to describe those inflammatory reactions following cataract operations, in which there were some lens remnants and no other cause could be determined.

In 1922 Verhoeff and Lemoine read a paper before the International Congress of Ophthalmology which met in Washington, and called the

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

inflammation which developed after the retention of lens remnants, phaco-anaphylactic endolphthalmitis.

They reported it as a specific clinical entity with a histopathological picture as due to hypersensitivity to lens protein, which might be congenital or acquired.

Several German ophthalmologists sharply disagreed with Verhoeff and Lemoine. And Gifford in this country, after experimental and clinical studies which were reported in 1925, concluded "that at best in most cases the split products resulting from the autolysis of the lens remnants were responsible. That the postoperative inflammation was due to inherent toxicity of the lens material itself rather than to allergy." This would explain the clinical observation that material from hypermature cataracts causes much greater reactions than from immature ones, that the second discission on juvenile cataracts frequently cause reactions and also explain the inflammation which develops following dislocation of the lens. The inflammations which frequently develop in phthisical or atrophic bulbs could also be explained by a slight injury which might cause the rupture of the lens capsule, subsequent to the pulling of the intraocular adhesions and the liberation of the cortical material.

The clinical picture as described by Verhoeff and Lemoine was that following liberation of the lens material into the eye and a definite inflammatory reaction occurred. If the lens material were in the anterior chamber only, there occurred marked conjunctival edema, vascularization of the cornea, hypopyon depending on the severity of the reaction, and the formation of a dense pupillary membrane.

If the lens was extruded into the vitreous an involvement of the ciliary body was marked with all the symptoms of a severe cyclitis.

The histo-pathological picture was a vascularization of the cornea, formation of dense fibrous pupillary membranes, when the lens substance was in contact with the iris, and the marked invasion of the lens fibres by pus cells. If the lens remnants were in the vitreous, a marked invasion of the ciliary body was present and polynuclear infiltration of the lens.

Professor Lindner in his course of lectures before the Chicago group this spring stated that he believed the cause of inflammation of the eyes with lens remnants was due to infection. He said that parasites grow best on dead epithelial cells, and as the nucleus and most of the cortex of the lens is made up of dead epithelial cells, any lens remnants became excellent culture media and that the inflammation was of bacterial origin. This theory of Professor Lindner's does not explain the clinical picture found in the eyes in which the bulb has not been opened, as in dislocation of the lens.

With these varied opinions the question of this type of endophthalmitis developing after cataract operations remains unsettled, but I want to report briefly two cases following cataract extraction which may be classed as phacogenetic endophthalmitis. If the lens remnants had been treated in the first as in the second case reported, the inflammation would no doubt have been much less severe.

Case 1. Mr. W. W. H., lawyer, age 66 years, came in December 1, 1933, with history of gradual loss of vision the past year, and for five months previously had been unable to do any near work. General health always good, and recent complete general examination negative, some dead teeth were negative to roentgenograms.

Examination: R. V. 0.6—2; L. V. 0.6+2. No Jaeger with either eye, and no improvement for distance with glasses, but Jaeger 2.50 in each eye with +3.50 lens. Pupils were equal, reacted to light and convergence. Anterior chambers were deep and the tension with Schiotz tonometer was 22.0 in each eye.

There were bilateral posterior saucer-shaped lens opacities in each eye and extension forward involving the anterior cortical fibres in the right eye. The vitreous was not visible. Few peripheral fundus vessels were normal in appearance. The peripheral and central fields were normal and color perception good.

The right conjunctival cultures were positive and remained so after treatment, so that the sac was removed on December 8. The conjunctival cultures were negative December 17 and 19.

December 21, 1933, right cataract extraction was done, with a conjunctival bridge, and opening of lens capsule with the corneal section. A peripheral iridectomy was made and the lens nucleus and cortex were flushed out with sterile normal salt solution. Atropine was instilled and both eyes bandaged.

The following day he complained of being uncomfortable, and the dressing was changed. The anterior

chamber was reformed and small amount of cortex was present in the 4.5 mm. pupillary area.

12-25-33. Eye in good condition.

12-28-33—or seven days later. Suddenly an intense ciliary injection and conjunctival edema developed. The cortical remnants were the same size, but less flocculent in appearance. Injection of 8 cc. milk was given, and scopolamine ¼% ordered every three hours, as conjunctival reaction was thought to be due to an atropine reaction.

12-29-33. Condition greatly improved.

12-30-33. Scopolamine psychosis. Eye in good condition.

12-31-33. Nausea and vomiting.

1-1-34. After consultation it was agreed to try to increase the dilatation of the 4.0 mm. pupil and desensitize with less antigen.

0.5 cc. lens antigen, as prepared by Dr. Elias Selinger at Rush Medical College, was given intradermally. Only a slight local positive reaction was noted two hours later, which remained for an hour. The following day the irritation of the eye seemed less. January 6 there was no pain in the eye, but the cortex had the same leathery appearance, with linear hemorrhagic infiltration into the lens cortex from the iris at 10 o'clock. On this day 1.5 cc. of lens antigen was given intradermally, and there was a severe local and focal reaction. The local reaction (5×4.5 cm.) with intense edema, appeared within 45 minutes, and pain began in the eye 12 hours later, and in 24 hours there was a marked hemorrhagic infiltration into the cortical remnant but no hyphemia was present.

The following 48 hours the pain rapidly lessened and a thick pupillary membrane was beginning to form by flattening of lens remnant and infiltration.

1-10-34. Desensitization doses of lens antigen was begun, and no local reaction occurred, but there was an increased hemorrhagic infiltration of the mass after the first dose.

1-12-34. Slit lamp examination. There were no posterior precipitates, no ciliary tenderness or injection, the inferior portion of anterior chamber was flat, and upper portion deep.

1-15-34. Homatropine instilled and intense burning developed, and three hours later the anterior chamber was filled with blood.

1-18-34. Milk injections started and blood gradually absorbed.

1-31-34. Vascularization of the limbal area of the cornea was first noted.

Diluted lens antigen continued in desensitizing doses.

2-5-34. Dr. Sanford Gifford was seen in consultation, and a poor prognosis was given, with danger of sympathetic ophthalmia.

Auto blood injections and lens antigen were given regularly and the inflammation gradually cleared up, so that a right iridotomy was attempted March 14, 1934, but the eye became too soft after a retrobulbar injection, and the anterior chamber filled with blood.

Typhoid injections were given following this, and the eye quieted down rapidly, and on April 7 the cornea was slightly flattened, and blood stained. There was corneal vascularization, except the central area (4×5.0 mm.), which was free. There was no flattening of the equator and no ciliary injection. There was temporal light projection and perception.

The left eye always remained free from any irritation or injection.

November 21, 1934, report by letter was that the right vision, with temporal light projection, remained the same, and the eye white, with a dense pupillary membrane.

The posterior subcapsular opacity had not increased in the left eye and vision remained the same for distance and had improved to Jaeger 1.00 at 22 cm.

Case 2. Mrs. M. P., age 55, came for examination December 4, 1934, with history of gradual failure of left vision the past five years, which began following removal of her teeth, and since July, 1934, light perception had only been present. Mother, sister and one uncle had had cataracts.

Findings: R. V. 0.8—3; L. V. good light perception and projection. No Jaeger either eye.

With glasses: R. V. 0.8+3 and Jaeger 1.00 at 24 cm. L. V. Good light perception and projection, and color perception normal. No Jaeger.

There was a left divergence of 20° (perimeter), movements of each eye normal in all directions. Pupils unequal, left larger than right, both reacted promptly to light and convergence, and the consensual reaction was normal. Anterior chambers were of moderate depth, and the tension with Schiotz tonometer was 22 in right and 18 in left eye. The right fundus was normal.

Right lens: Posterior subcapsular saucer-shaped changes with granules and crystal reflections, which extended forward, involving the anterior cortical layers. The nucleus was clear.

Left lens: All layers involved in a dense milky white homogenous opacity. No capsular exfoliation.

Diagnosis: Right incipient complicated cataract. Left mature complicated cataract.

Conjunctival culture was taken, and 1 cc. lens antigen given intradermally, both of which were negative after 24 hours. Blood sugar was 146 mg. per 100 cc. of blood. She was put on a diabetic diet by her general physician, and on January 30, 1935, the blood sugar was 78 mg.

2-4-35. Left cataract extraction. A conjunctival bridge, opening of lens capsule with corneal section, and peripheral iridotomy was made, and the nucleus and lens cortex removed by irrigation with normal saline. Pilocarpine 2% instilled.

Four days later, at first dressing, left vision, fingers 2 ft. easily. Slight swelling right upper lid and conjunctival edema. Cornea clear. Anterior chamber deep, pupil round, 5 mm. No cortex apparent. There was a small amount of fresh blood over the pupillary area. Atropine 2% instilled.

The following day patient stated there was slight

pain for a short time during the night. At this time a small amount of cortex was visible over temporal margin of pupil.

2-11-35. Conjunctiva more edematous, cornea clear, pupil 4.0 mm. There was a round faint yellowish leathery-like mass of cortex 2x3 mm. lying temporarily in the pupillary area. Iridotomy wound in good position.

2-12-35. The leathery mass appeared to be infiltrated with blood and apparently becoming vascularized from 2 o'clock; pupil 5.0 mm. Tactile tension good.

2-13-35. Conjunctival edema same. Posterior to pupil there was a thin membrane on which the solid looking yellowish round mass of cortex remained.

The same afternoon the anterior chamber was opened through the first incision 9:30 to 11, and the mass aspirated and irrigation of the anterior chamber with sterile normal saline.

2-14-35. Anterior chamber was reformed. There was no conjunctival edema and the pupil was 4.5 mm.

2-15-35. No conjunctival edema and ciliary injection markedly lessened.

2-16-35. 0.5 cc. lens antigen was given intradermally, and 5x7 mm. edematous area developed in three hours, and remained about three hours. There was no change in condition of the eye.

3-18-35. Needling of the thin membrane was done, and

3-27-35. Manifest: L. E. +9.00 w +2.00 ax 45 = 0.8 +4.50 added. J. 0.62 at 25 cm.

Fundus normal.

SUMMARY

In summing up the results in these two cases, and comparing the findings with the clinical and laboratory reports of other workers, I feel that it was probably the cortical remnants which acted as a toxic factor. In these two cases the remaining cortex lost its flocculent appearance within the first four or five days and became a rather dense yellow mass, which was infiltrated with blood. The prompt and rapid improvement after the removal of the lens substance by aspiration and irrigation in the second case, makes this method seem to be the logical procedures in the condition known as phacogenetic endopthalmitis.

To determine an allergic reaction certain factors must present themselves. There must be a possibility for sensitization previously, as by ingestion of lens material, an intradermal test with the injection of lens substance, or freeing of lens substance in the eye, with subsequent encapsulation of the remnants. Then with an operative procedure or in any other way in which the lens remnants would be freed, sudden conjunctival edema and other symptoms of anaphylactic irritation would appear.

In the first case in which there had been no previous opportunity for sensitization as far as could be determined, the symptoms appeared on the 7th day, and the first intradermal test with 0.5 cc. lens antigen made on the 11th day was negative. But the second intradermal test with 1.5 cc. of lens antigen made 6 days later, or 13 days after operation, was markedly positive focally and locally.

The second case had had the test for lens sensitivity about two months previous to the operation, and the irritation due to lens remnants should have appeared within twenty-four hours after the liberation of the lens material, but the symptoms of irritation did not appear until the seventh day.

As these two cases do not fit into the requirements for an allergic reaction, they should then be classified as due to the toxicity of the lens remnants themselves, and these two cases be called phacogenetic endophthalmitis.

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DISCUSSION OF SYMPOSIUM ON SENILE CATARACT

Dr. W. A. Fisher, Chicago: It is a pleasure for me to open this discussion because I, too, have had the pleasure of listening to Professor Lindner of Vienna in his course given in Chicago, and many of you have had the same pleasure.

Professor Lindner states that he now has laboratory proof that postoperative inflammation is toxic and due to retained lens matter and that the bacteria (saprophytes) causing this toxic inflammation could not exist without lens matter to live upon and would naturally either not appear or die before postoperative inflammation could occur. If this be true, postoperative inflammation could not follow if the lens was removed within its capsule without complications.

Lindner states that since his discovery the intracapsular operation has become popular in Vienna and he believes his discovery will remove the last objection to

the intracapsular operation from operators who have been doing the capsulotomy operation and recommending it.

Dr. Louis Bothman, Chicago: I would like to call attention to a statement which Professor Lindner made while in Chicago. In a conversation with him I asked what form of akinesia was used in his clinic, and he said they were not using the method of Wright and O'Brien, but had gone back to the Van Lint, because they had seen several cases of facial paralysis develop after the O'Brien akinesia. I have used it a great many times myself, and have never seen that complication. Lately I have been using the Van Lint entirely. Col. Wright, who first introduced the so-called O'Brien akinesia, reported facial palsy by this method (Arch. Oph. **52**:166, also **55**:555).

I cannot agree with Dr. Woodruff that in capsulotomy operations almost 100% require needling; I should say that it would be more nearly 20%. One other point, about irrigation used in the capsulotomy operation. Most of us are using a thin tip which is introduced into the anterior chamber following the lens extraction. Dr. Wiener of St. Louis irrigates using an ordinary glass cylinder to which is attached a rubber tube and the tip of an ordinary medicine dropper, flattened to permit a small stream. He directs the stream onto the corneoscleral junction of the wound. He does not hold the tip nearer than 1½ inches from the incision. He uses no conjunctival flap and succeeds in clearing the anterior chamber almost as well as we do by other methods when we sometimes introduce the tip into the anterior chamber.

Dr. Sanford Gifford, Chicago: I intended to mention that one of the chief advantages of the flap is that you can see the incision as you make it; it is not in your way. It is shaved off the limbus and retracted away from the limbus entirely. There is never the tendency to make it too deep, as when you are making it with a knife. Then it is not in your way and you can see through the cornea and there is no interference with vision in grasping the capsule or in doing anything else.

Dr. M. L. Folk, Chicago: I am surprised to learn that Dr. Nugent puts in eight or nine sutures. He used to use only two or three. I should say it would be too dangerous in the average case to fool around with nine sutures, as one could easily lose vitreous while putting in the sutures. In regards to iridotomy, it seems to me that it is not going to prevent prolapse of the iris. I asked Professor Lindner about this and he said an iridotomy does not prevent prolapse. He believes in either complete or peripheral iridectomy.

Dr. Harry Woodruff, Joliet: I am inclined to the opinion that a needling is necessary or at least advisable in any capsulotomy operation. There is always the posterior capsule which will later wrinkle and become more or less opaque. Naturally one is influenced by the visual acuity. If vision is 20/20 even with the intact posterior capsule conservatism would incline one to postpone the needling.

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SCARLET FEVER

(Susceptibility and Active Immunization)

SILBER CHARLES PEACOCK, M. D.

CHICAGO

Susceptibility. Over 75 per cent. of the cases of scarlet fever occur during the first ten years of life. Less than one per cent. of those contracting the disease are found at or under the first year. This lessened disposition to contract the disease during the first twelve months is most pronounced in nurslings under 6 months. Scarlet fever is indeed quite rare under 3 months of age.

During the past 16 months, 3,029 children[1] which were practically all of the charity patients admitted to the Children's Memorial Hospital were Dick-tested as a rule within the first 24 hours of hospitalization. They ranged in age from new borns to 13 years. It was possible to analyze the susceptibility of these children according to age levels. Under 3 months to 6 months susceptibility to the disease was decidedly low, 1 out of 11; and from 6 to 12 months it was sharply elevated to 1 out of 2. At 1 to 2 years, about 4 out of 5 were susceptible; at 2, 3 and 4 years, 3 out of 4; at 5 to 8 years, 1 out of 2; at 9 to 11 years, about 1 out of 3, and from 11 to 13 years approximately 1 out of 4. Therefore, it would seem from the results of these skin tests that the most susceptible period for contracting scarlet fever is from the 1st to the 8th year of life. (See graph.)

Considerable natural immunity[2] to scarlet fever is attributed to the American Indians, Eskimos, Negroes, East Indians and South Africans.

Rural adults having histories negative for the disease are commonly susceptible to scarlet fever. On the other hand, adults that have sojourned most of their life in the average large cities with histories negative for scarlet fever do not as a rule develop the disease on definite exposure. Probably many of these have been immunized previously from insignificant infections through harboring scarlet fever streptococci. In this connection, it is not uncommon to observe Dick negative adults who have had recent contact with

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Read before Section on Pediatrics, Eighty-fifth Annual Meeting, Rockford, May 21, 1935.

cases of scarlet fever experiencing no rash but definite attacks of sore throat or tonsillitis accompanied perhaps with fever or malaise. Such observations produce a squeamish attitude on the part of the clinician in accepting wholeheartedly the idea that persons reacting negatively to the Dick test are assured complete protection against the invasion of scarlet fever organisms.

Notwithstanding this controversial situation a universal trial of the Dick test over a decade has shown that at least 90% of the time the test is a good measure of the susceptibility to scarlet fever. The test consists of the intracutaneous injection of 0.1 cc. of toxin obtained from at least two or more strains of hemolytic streptococci isolated from proved cases of scarlet fever. The middle part of the flexor surface of the forearm is the best site for performing the test. The skin should be cleansed with ether or 95% alcohol and allowed to dry before making the injection. Weaker alcoholic solutions do not evaporate promptly from the skin surface and may render the toxin inert through precipitation.

The test should be read within 22 to 24 hours and preferably in the daylight. Occasionally artificial light is a handicap in discerning faintly positive reactions. An erythema of about or more than 1 cm. in diameter indicates susceptibility. The size and intensity of the reaction is a fair index of the degree of susceptibility. The erythema is not indurated and practically disappears on making the skin taut. If the area is indurated and a nodule, perhaps from trauma, is present, the test should be repeated if there is a question as to the interpretation of the reaction. No reaction at the site of injection as a rule indicates immunity. Less errors are made in interpreting the reaction to the Dick test when it is performed in duplicate. It should be the habit to make the test in duplicate. Occasionally some cases of scarlet fever found occurring in persons having had negative reactions to the Dick test were those in whom the reaction to the test was erroneously interpreted.

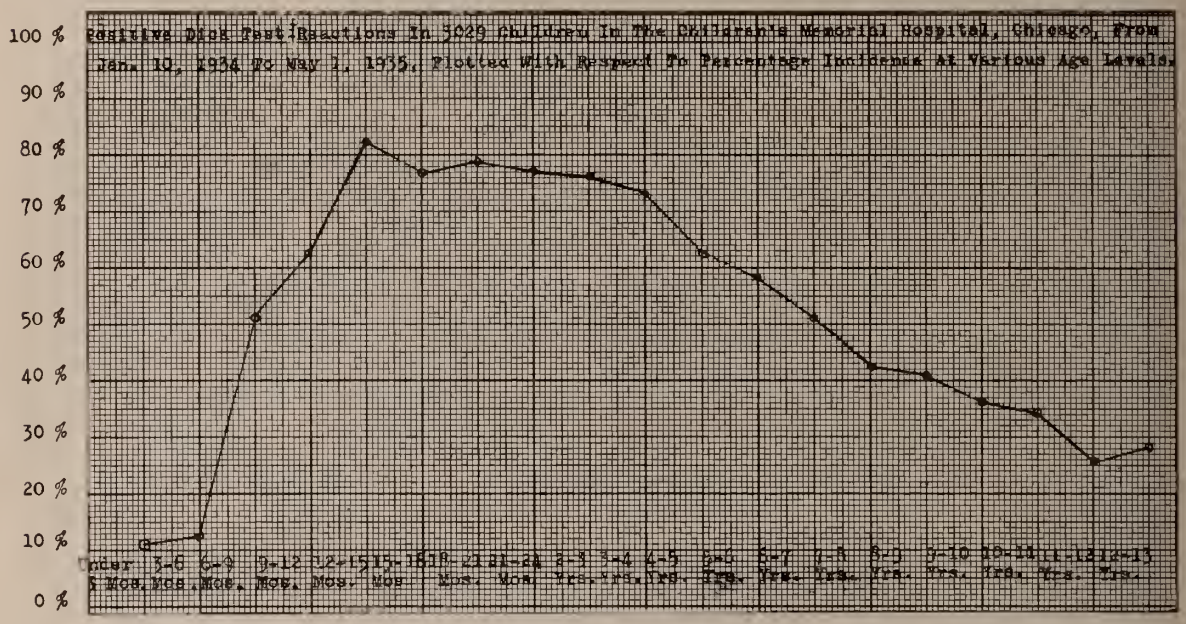


Fig. 1. Percentage incidence in age groups of positive Dick test reactors in 3,029 children.

Some workers are of the opinion that a positive reaction to the Dick test is an allergic phenomenon and, therefore, toxin injections only immunize the person against the rash element of the disease. There are not a few exponents of this idea in the United States[3] and elsewhere.[4,5] However, the undisputed excellent long term results obtained through immunization by the 5 or more injections of the sterile commercial toxin in institutions and in private practice, renders that theoretical view untenable.

In the State of Illinois as a whole in 1929 to 1933 inclusive there were on an average over 16,000 cases of scarlet fever annually. There was an average of 1.9% deaths from the disease

per year. The average mortality per 100,000 population was 3.9. However, in 1934, there was an increase of 5,000 cases but the mortality rate remained the same. It may be argued on the basis of the mortality rate that there is not sufficient ground to warrant the use of active immunization. The prevention of disease should always be the goal in the practice of medicine.

Active Immunization Against the Disease. Five graduated injections of the sterile commercial toxin at about weekly intervals are sufficient to produce negative reactions to the Dick test in at least 90% of the susceptibles. It is advised that the Dick test should be repeated about two weeks after the fifth injection of the toxin. If a positive reaction is obtained, the fifth dose is to be repeated.

Reactions Following the Injection of the Toxin. The size and intensity of the person's local reaction to the Dick test is of some indication as to the frequency and the severity of systemic reactions which may follow the injections of the toxin. Some of these reactions measure as much as 3 to 5 cms. in diameter. The average reaction, however, is about 2 to 3 cms. in diameter. From 10 to 20% of those injected experience marked local or systemic reactions. The common systemic reactions are usually malaise, joint pains, nausea or vomiting and occasionally rashes, scarlatiniform or urticarial in character. Some may complain of abdominal pain which may or may not be associated with a few loose stools. These reactions are of no serious consequences. However, at least 75 to 80% of the persons receiving the toxin injections experience no systemic reactions.

Adults and older children are more likely to experience systemic reactions than are younger children. As a rule active immunization by the toxin injections is carried out with a negligible number of reactions in children around 2 to 6 years of age. Those age levels are the most desirable periods for the immunization.

If a severe reaction occurs it is sometimes advisable to mix adrenalin hydrochloride 1:1000 (m iii) with the toxin in the syringe just before the injection.

The practice of repeating the Dick test 2 to 3 weeks after giving the fifth dose of toxin should not be neglected. If at that time there is any question at all about the test being positive the fifth dose of toxin should be repeated. On an average about 5 to 7% require the fifth dose to be repeated.

Durability of Active Immunization from Toxin Injections. On the whole the durability of active immunization against scarlet fever from the toxin injections seems to have been very good, judging mostly from the results that have been obtained in this country and elsewhere, especially in institutions, in some city health departments and to a less extent in private practice.

Doctor J. N. Henry[6], Director of the Philadelphia Department of Health, informed me recently that they had used scarlet fever toxin for active immunization over a period of 10 years. Since 1932 he has employed it extensively in schools and homes. In his judgment he rates the toxin immunization for scarlet fever as on a plane equal to the procedures employed for immunization against diphtheria. He affirms that better than 90% immunity is found at the end of several years following Dick toxin immunization. He has tabulated the data in a paper which he will read before the next Pediatric Section of the American Medical Association at Atlantic City.

During the past 8 years, Doctor J. W. Armstrong[6] has used the toxin injections for immunization against scarlet fever at Berea College. During that period about 700 students have been immunized against scarlet fever. He informs me that none of those who received the toxin injections since 1929 have contracted the disease. He also believes that the 5 injections will immunize over 90% of the cases.

In their series of cases 70% of those immunized experienced no reaction beyond the local site of the injection. They have not had any complications following the toxin injections. This immunization programme at Berea College seems to have been a great success and the majority of the students volunteer for the immunization.

Doctor J. P. Koehler[6], Commissioner of Health of Milwaukee, in a personal communication recently reports that they have given toxin injections during the past year to approximately 9,000 children. In about 6,000 children they were able to complete the series of the 5 or more injections of the toxin. In 6.5% of the cases it was necessary to repeat the fifth dose. He states that about 3% after each injection had severe reactions such as a temperature over 102° F., vom-

iting, joint pains and absence from school for more than one day. In about 1% of the cases the reactions following the toxin injections were unusually severe, making it necessary to discontinue the injections. Approximately, 15% had moderate and 20% mild systemic reactions. Only 13 children out of the 6,000 who had received the 5 doses and yielded a negative Dick test contracted scarlet fever within one year after they were immunized. Dr. Koehler is to report this work at the next meeting of the American Public Health Association at Milwaukee in October.

Some idea as to the increase in the use of the toxin can be obtained from the information[6] furnished by the Scarlet Fever Committee that: the sale of scarlet fever products consumed in 1933 was 130% of the volume consumed in 1932 and the volume consumed in 1934 was more than 155% that consumed in 1933.

Other Methods of Active Immunization Employing the Toxin. The Inunction Method as employed by Martmer[7], and also others, appears to have definite value for the production of active immunity against scarlet fever. He used 5 applications of an ointment containing the equivalent to at least that of the 5 injections of commercial toxin. The ointment was massaged into the skin at intervals of one or five days. He reports that about two-thirds of his group of 155 children, ranging in age from 2 to 10 years, developed within 6 months negative reactions to the Dick test. It is as yet too early to determine the durability or reliability of this method of immunization.

The Nasal Route of Administering the Toxin for Immunization. Friedman[8] and his associates have had considerable success in rendering susceptibles negatives to the Dick test by administering into the nose the toxin by employing an atomizer. He recommends provisionally in children under 3 years of age the equivalent of the 5 doses of the commercial toxin, and in those past 3 about twice that amount. Five inoculations are administered at weekly intervals. His inoculations were not attended by any serious or constitutional effects. He does not, apparently[6], advise it in hay fever patients, or asthmatics or in those having sinus disorders. Such persons may experience rather severe reactions. He states that the attempt was completely successful in 60% and 71% of the children respectively; and that partial immunity was conferred in a considerable percentage of the balance of the group.

Administration of the Toxin by Mouth. Dick and Dick[9] in 1932 were able to produce active immunity in 73.1% of their group of 19 persons in whom massive doses of toxin were administered by mouth. They state that with the exception of vomiting in one case no reactions resulted from this route. However, they did not find this method of immunization nearly as efficient as the injection procedure. At present probably the expense of the large amount of toxin required makes this method impracticable for general use.

CONCLUSIONS

1. The most susceptible age levels for contracting scarlet fever are probably from 2 to 8 years.

2. The series of 5 doses of commercial toxin for active immunization have proved to be the most efficient method.

3. The preponderance of evidence justifies a more extensive use of the toxin for active immunization.

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DISCUSSION

Dr. Ray C. Armstrong, Champaign: There are only two or three facts that I would like to emphasize. The first is the reliability of the Dick test. The Scarlet Fever Commission has reported 20,000 cases known to be negative to the Dick test. None of these people have contracted the disease. Gasul has reported recently among a group of nurses at Cook County Hospital that all those who showed a negative test did not contract the disease at all. Concerning the use of the Dick test in diagnosing scarlet fever and sometimes in the course of the disease, a persistent positive through the course of the suspected disease usually shows that the patient did not have scarlet fever. However, a positive reaction in the early part

of the disease and a persistent negative later usually confirms the diagnosis, though the Dick test is not intended for diagnostic purposes.

The one important thing Dr. Peacock brought out was immunization by the nasal route, which was reported by Friedman of Colorado. Zollers and Friedman, in 1928, first used the nasal route in trying to immunize children against diphtheria. They got nine out of ten negative reactions against it. The skin reaction is very easy to interpret, except it is difficult to give the subcutaneous test in four or five year old children. For that reason, I think the intranasal route will be very successful, especially in some nervous types of children. Friedman emphasized the fact that in using the intranasal route the children should be brought to the office in the afternoon. Have them blow their noses very carefully to remove as much moisture as possible and then give the full dose of Toxoid, allowing them to rest on the back for a short time and then go home and be as quiet as possible, not blowing the nose for some time afterward. His results were very good, 60-80% immunization being obtained.

Dr. Peacock mentioned the fact that adrenalin should be used. A good many of us also use phenobarbital. We try to get the patients in the office about four or four-thirty in the afternoon, give them one-fourth of a grain of phenobarbital and send them home. Later in the evening we give another quarter grain of phenobarbital and usually we get no reaction from the injection. I recall two patients in the same family who developed very severe abdominal reactions after the second injection. We stopped the injections because we did not want to take any chances. If you have a group of patients living in the same neighborhood and they all go through the same thing, it does not help a whole lot. If we can get these injections to the place where we can give them the same as we do toxin-antitoxin, we will be better off.

It is interesting to know the age of susceptibility of these very young children. We think of the most susceptible as being children in either first or second grade. I think the statistics given by Dr. Peacock show a difference, not school age youngsters but ones at quite an earlier age. He also mentioned rural adults. I think anyone who had much experience at the Municipal Contagious Hospital will recall that there were always two or three students from the Coyne Electrical School in as patients. Most of these are boys from small towns or farms where they have had no contact with scarlet fever and built up no immunity, and for that reason we always get them when there is an epidemic of scarlet fever.

Dr. Maurice L. Blatt, Chicago: The purpose of the speaker is the promotion of knowledge of the prevention of scarlet fever. Before entering into such discussion, I think one should more clearly define one's conception of scarlet fever. If one thinks of scarlet fever as a hemolytic streptococcus throat infection primarily, accompanied in some individuals by a skin erythema, then one is in a position to control its dissemination. Diagnosis depends not only upon the skin reaction but upon the finding of hemolytic streptococci in the throat, not in small but in large numbers. Small numbers of hemolytic streptococci are found in the throats of normal individuals rather frequently. If one thinks of scarlet fever as a hemolytic streptococcus throat infection, then one recognizes that one cannot entirely control an epidemic by immunization with the Dick material because there are many individuals with the active organism of the disease in their throats who will not develop a skin erythema. They will not be recognized as scarlet by the average physician. The Dick test is satisfactory. The Dick immunizing material is effective in a large proportion of children, but not in 100% as one might infer from this paper. We have seen a number of nurses at the County Hospital who were at one time Dick negative develop scarlet fever. That brings up the question of the length of time that the Dick immunization protects. We are not in a position to answer this question at this time. I have seen children become Dick negative after five doses of toxin and within four weeks contract scarlet fever. On the other hand, I have one institution housing 250 children under three years of age, the most susceptible group, with a 30% turnover each year. Five years ago we instituted Dick therapy in accordance with the Dick method and we have not had a single case of scarlet fever in this group since. During this year's epidemic of scarlet fever in Chicago, without quarantine in this institution and with daily visitors, not a single case of scarlet fever developed, in spite of the fact that one nurse on duty exposed a whole floor. In this institution, the Dick test has been 100% successful, but it is not 100% throughout the United States.

Dr. John S. McDavid, Oak Park: The recent years have been very productive in regard to finding out things about scarlet fever. Although the Dicks first reported their Dick test about ten years ago, controversy still rages about the specificity of this test. However, as Dr. Peacock brought out, if one observes the technic of making the test and properly reads the test in twenty hours or twenty-two hours, there seems to be very little question about its reliability. In Budapest, Dr. Bella Johns reports that not a case of scarlet fever has been reported in twenty thousand individuals on whom she had negative Dick tests. More recently Rhoades and Gazul have reported that not one case of scarlet fever has been observed in twenty thousand people tested by the Scarlet Fever Committee who had an original negative Dick test. I think it would be worth while to bring out the point Dr. Armstrong mentioned, that as far as the diagnosis of scarlet fever is concerned, probably the Dick test is of very little value. In the report of Dr. Rhoades and Dr. Gazul they found in twenty-four hours that 58% of all patients who developed scarlet fever had a negative Dick test. This work specifically points out that, so far as diagnosis is concerned, the Dick test's only value perhaps is that a person who is Dick positive three weeks after the onset of suspicious symptoms probably did not have scarlet fever. Gazul and Rhoades thought the culture was of the greatest value

in diagnosis. They reported 85 cases of scarlet fever with 100% positive cultures.

The phenomena of infants showing a negative Dick test during the first year is very interesting. It is somewhat paralleled in the first few months of life by the Schick test, though you will find more positive Schick tests in the first few months than you will Dick tests. It is of particular interest, due to the fact that infants' blood contains no scarlet fever antitoxin. One seems forced to fall back to the supposition that the reticulo-endothelial system of the infant is not well developed, and, therefore, does not give a result. It is well known that the infant's skin does not react to many other toxins.

The question of whether it is worth while to try to immunize a child to scarlet fever depends upon whether the results outweigh the reactions, or chances of any serious complications. It is a well established fact that you can take an institution, immunize practically all of the people therein and keep them immunized. In private practice we still hesitate because of the reactions. However, I believe if individuals are selected carefully, care being taken to immunize only those who give a negative allergic history, that one is perfectly safe in going ahead. Some reactions are to be expected. I have not had success in giving adrenalin with the injections. It seems to me I get just as many reactions when giving it as when not giving it.

Many attempts have been made to develop a scarlet fever toxoid. Most of the methods have been similar, but vary in the aging of the toxin, the strength of the formalin and the amount of toxin used. Scarlet fever toxin is remarkably stable; it is more stable than any other known toxin and therefore it has been impossible to attenuate it and still retain the immunizing principle.

About a year and a half ago I attempted to immunize 22 children with rubs. Twenty-five thousand units of toxin was taken up in lanolin. The patient's back was scrubbed with 95% alcohol and the lanolin rubbed into the back until it had disappeared. The attendant wore a rubber glove and five rubs were given, five days apart. A Dick test was done before the applications were started and again five months later. My results are at sharp variance with those of other reported cases, because I had only four children out of the twenty-two who were Dick negative. In general, the Dick tests were not as positive as before the rubs were started. Two of those children have developed scarlet fever since.

In looking up my records in the office I found that 86% of the children I have given the Dick series of injections were Dick negative after the usual five injections. In four out of the group I had to stop giving it because of the severe reactions that developed. It seems to me if a child has an extremely positive Dick he is apt to get a severe reaction. Children with only mildly positive tests will sometimes react severely too, however, and so the size of the Dick reaction is of only relative value. It is my distinct impression that if one were to attempt to immunize all of the children he sees, without careful selection of cases, he would have many very severe, and probably serious, recations.

I would like to ask Dr. Peacock if, in his work, he attempted in the children who had the more severe reaction to cut down the size of each dose and give more shots, and if he did, were his percentages of negative Dicks just as high as if he went straight through the five injections? My personal experience has been negative. If I cut down the size of the injections and gave eight or nine, I was more apt to get a positive Dick than if I went through the five.

Dr. Armstrong mentioned giving phenobarbital and having the patients eat lightly following the injection. I think that is important. I had one child whose mother brought him up for the first injection and he got along fine. The father brought him up for the second and he had a severe vomiting spell that night. That occurred after the third injection. The mother brought him for the next one and said that she had just found out that the father had given the youngster an ice cream soda on the way home as a reward for taking the injection. The child had no further reactions. I think it is important that they eat lightly following each injection.

Dr. Silber C. Peacock, Chicago (closing): Dr. McDavid's question: Is it advisable to subdivide the five doses of toxin for immunization of a patient having an allergic constitution? At times, only, I believe that I have had some results in reducing the severity of the reactions following toxin injections by making two injections, instead of one, of the first, second and occasionally the third doses, administered at intervals of 4 to 5 days instead of a week apart. The cases to be immunized against scarlet fever should be individualized, because not infrequently some persons are encountered that are extremely hypersensitive to the toxin. In such patients it may be advisable to discontinue the toxin injections. Fortunately such persons are scarce. A careful history is a most valuable means for the detection of hypersensitive individuals.

Dr. Blatt's interjection: "One from hearing the paper read should not get the idea that the Dick test is perfect" may be justified. However, the Dick test, in my experience and that of many others, has been an exceedingly reliable test. I have never seen scarlet fever develop in an individual in whom I have found a negative reaction to the test. During the past nine years I have Dick-tested over 6,000 persons. Perhaps some of these with negative reactions to the test did develop the disease. It is my opinion that the number that have contracted the disease, who yielded negative reactions to the Dick test, are well within the range of error due to faulty technique or misinterpretation of the reaction.

I have had occasionally such an experience as this: A person was alleged to have had a "negative reaction" to the Dick test and contracted unquestionably scarlet fever, presenting this interesting phenomenon: the site of the so-called negative reaction was occupied by an area of bright pink erythema. A reasonable deduction in such a situation is that the "negative reaction" had been misinterpreted. Questionable reactions are practically ruled out by the use of duplicate tests.

THE ROENTGEN DIFFERENTIATION OF OSTEOMYELITIS AND METASTATIC BONE TUMORS

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The subject to be discussed, while intensely interesting, is likewise exceedingly difficult and often hazardous. I used the word hazardous for all that it implies, as it places extreme responsibility upon the surgeon and radiologist. To differentiate inflammatory from malignant bone lesions requires considerable experience and a thorough knowledge of radiology and pathology. Koloday has said: "To read and interpret correctly a roentgenogram of a bone tumor, is an art acquired only with wide experience combined with a thorough knowledge of gross pathology."

I am not adverse to candidly admitting that in many instances I have been unable to definitely differentiate neoplastic from inflammatory lesions. While the subject is difficult, there are certain rather well established x-ray findings which are helpful in arriving at a diagnosis.

I think it is imperative that the radiologist avail himself of all the information that can be elicited through a complete history including laboratory findings. It is not fair to all parties concerned to expect the radiologist to make a diagnosis from the films alone in many instances. The difficulty and seriousness of the problem can be readily demonstrated by submitting microscopic sections to competent pathologists. A recapitulation of their reports will often show a wide divergence of opinions. Any one who has had experience with the so-called Ewing's tumors is definitely impressed with the difficulty of differential diagnosis.

From sections, the pathologist often calls the lesion inflammatory. The clinical findings are also confusing, as the patient may have a fever and a leucocytosis, also common in osteomyelitis. Considering these facts, it is only fair to be charitable with the radiologist, who after all, is only reading shadows which are by no means animated.

What are the salient points in the x-ray diagnosis of inflammatory lesions?

1. Infections usually occur in young people, probably more frequently in males than females.

2. The infection occurs more frequently during the active period of a person's life when he is exposed to injury. I do not mean to infer that the infection always starts from an external wound, but the injury often causes a lowered resistance of the part, and the infection localizes at this point.

3. The first Roentgen examination may reveal no evidence of bone pathology. It is inadvisable to take a negative report from the film as final, especially if the examination has been made within the week.

Usually, x-ray changes in bone infections are slow in presenting, and it is safe to say that they do not become manifest until a week or ten days after the infection. The first finding usually reported is bone rarefaction due usually to destruction, but if the film is examined closely with a magnifying glass, the earliest finding is an area of increased density probably due to edema and infiltration of leucocytes.

The clinical findings and local manifestations are of more diagnostic importance during the early stages than the x-ray findings. Another important and fairly reliable differential roentgen finding is the resistance offered by cartilage to the extension of neoplasms.

It is only in the far advanced cases that a malignancy passes through a joint. I have observed only a very few cases when the tumor has destroyed both sides of a joint, whereas the reverse is true in infections.

An inflammatory process may attack large portions of the bone, but usually the lesion is not as extensive as neoplastic lesions. By this I mean the entire circumference of the bone is not destroyed and it is not uncommon to see normal areas of bone in the area of destruction. In our experience large sequestra are rare in malignant bone lesions.

It is much more difficult to differentiate primary bone tumors from inflammatory lesions than it is to differentiate metastatic tumors from bone infection.

The x-ray diagnosis of bone lesions depends upon direct and indirect findings. Usually the direct findings are of more value than the indirect. The direct findings are those seen in the bone and are due either to destruction or proliferation. Bone destruction and proliferation, per se are not pathognemonic of either infection or malignancy, as they are present in both types of lesions. Indirect findings are those seen

Read before Joint Meeting Sections on Radiology & Surgery, Illinois State Medical Society, Rockford, May 21, 1935.

in the surrounding tissues, such as displacement of the surrounding structures.

Whether a lesion is malignant or benign is often judged on the radiographic appearance by the nature of the bony changes—osteoporoses, osteosclerosis, erosion, new bone formation.

The definition of the new bone, if present, as compared with the normal, is important. Often the bone in a tumor will be perpendicular to the shaft or silk like. While these findings are helpful, they are not infallible. Lace like bone formation and perpendicular striations are also encountered in syphilis.

Careful study of the bone from all different angles is important, also stereoscopic films are often of great aid.

A point of considerable importance to establish is whether the lesion extends outward beyond the bone and into the soft tissues. In our experience, lesions which show a mass extending from the bone into the soft tissues are neoplastic and not inflammatory. It must be established that the mass has its origin in the bone and does not originate in the soft tissues and cause bone changes by pressure.

In patients where the bone lesion is at all suggestive of a neoplasm, it is often helpful in arriving at a diagnosis to examine other bones. If there are areas of bone destruction or proliferation in other bones, the chances are these lesions are metastatic.

Osteomyelitis, when acute, usually occurs in young people in the actively growing part of the bone, usually the lower ends of long bones. The disease may be caused by the streptococcus, staphylococcus or pneumococcus. Probably the commonest cause is the staphylococcus aureus.

The fact that there is a very poor anastomosis between the metaphysis and the epiphysis probably accounts for the infrequency with which the infection spreads to the epiphysis. While this is true in the ordinary osteomyelitis, tuberculosis usually attacks the epiphysis, which is a differential diagnostic point. It has been said by some that staphylococcus albus or streptococcus may spread to the epiphysis.

If the pneumococcus attacks the epiphysis, there is usually a pneumonia present or the patient has recently had a pneumonia.

In the early acute stage of osteomyelitis, there are usually no visible x-ray findings and the diagnosis or the operation should not be defined on radiographic evidence. If the clinical findings are apparent they should take precedence. Early destructive bone lesions are microscopic and cannot be seen in an x-ray film. It requires from 7 to 10 days for the changes to become visible in the x-ray films. Before the areas of destruction can be outlined, occasionally an area of increased density can be seen with a magnifying glass, due to edema. At the end of 10 days small areas of bone destruction can be seen in the cortex and medulla. These areas are usually circular but irregular. Following these small areas of destruction, the process will extend, invading the bone and elevation and proliferation of the periosteum will occur.

If the infection is virulent, destruction will extend much faster than repair takes place. As the patient's resistance increases repair will take place and will be in advance of destruction. It is not uncommon, due to the poor blood supply of the cortex, to have large pieces of necrotic bone called sequestra, develop; these areas are present before large destructive areas in the medulla appear. The extent of the lesion depends on the virulence of the infection and on the thoroughness of the treatment. It is not uncommon to see the entire shaft of the tibia or femur involved.

As the lesion becomes chronic, proliferation of new bone appears and areas of new bone can be seen in the area of destruction. Large areas of dead bone often develop and the greater part of the shaft may sequestrate. Usually the amount of blood supply has much to do with the x-ray findings; increased blood supply causes decalcification, decreased blood supply causes increased calcification, and if the blood supply is cut off there will be no changes in the calcification.

Often in an x-ray film one can venture an opinion as to whether a fragment of bone is dead. If the piece of bone remains of about the normal consistency in a decalcified field, it is quite safe to say the fragment is avascular.

The significance of the density of bone shadows is important and the radiologist's approach is the converse of the pathologist's: the radiologist interprets the decalcification as evidence of an increased blood supply.

In chronic osteomyelitis, localized abscesses often develop. These areas are usually circular and have a soft center and a rather definite periphery, which may be thick or thin depend-

ing on the chronicity. The organism is usually of low virulence and the high resistance of the patient allows very little extension and the area becomes circumscribed. The cortex and periostum are very seldom involved. These abscesses usually occur in the ends of long bones and occasionally they develop in the body of a vertebra. The articular surfaces of the vertebra and the intervertebral discs are usually uninvolved.

Roentgen findings are greatly distorted following operation and often it is impossible to give an accurate diagnosis. This is particularly true when a Ewing's tumor is present. The complete removal of a large piece of cortex may simulate bone invasion which is an important diagnostic point between osteomyelitis and neoplasia.

Following irradiation changes occur in bones, depending on the amount of irradiation. If the dose has been large, necrosis may occur, and if the dose has been small, bone proliferation occurs. I mention these points to emphasize the importance of a history.

The sclerosing type osteomyelitis of Garre is not common but is occasionally encountered especially in the femur and humerus. The x-ray films present a dense homogeneous bone. The process usually involves the upper half of the bone and usually the medulla is obliterated. This type of lesion is not as a rule difficult to diagnose, but may occasionally be confused with marble bone (Osteopetrosis or Ewing's tumor).

From our experience we believe the most important differential finding is bone invasion. While I know invasion of the cortex occurs in osteomyelitis, I think it is rare to have normal bone intervening in a malignant area of invasion, whereas in osteomyelitis it is common to see normal bone growing in an area of invasion.

In our experience we have found it more difficult to differentiate osteomyelitis from primary neoplasm than from metastatic tumors.

After all points are carefully considered, it is difficult to accurately differentiate bone lesions and in many instances it is impossible and multiple microscopical sections must be studied.

Certain primary tumors are prone to cause metastatic bone tumors, namely: carcinoma of thyroid, breast, hypernephroma and prostate. Tumors of the gastrointestinal tract are less frequently followed by metastatic tumors as these patients usually die before metastasis occurs.

Metastatic tumors are usually blood borne, except in cases where there is local extension. We believe that metastatic tumors of the pelvis following carcinoma of the breast are hematogenous, as it does not seem reasonable to assume that such a lesion could be lymphogenous.

From our experience, metastatic lesions distal to the knees and elbows are very rare. After puberty there is practically no red bone marrow in bones distal to the elbows or knees. Piney contends that all bone metastases occur in cellular red marrow which accounts for the frequency of such deposits in the ribs, vertebrae, skull, sternum and the upper ends of humeri and femora.

The preponderance of evidence at this time seems to favor the claim that bone metastases are blood borne. Professor Handley regards the infrequency of metastasis in the distal limb bones as evidence in favor of the lymphatic permeation theory, claiming the nearer the bone to the primary growth, such as carcinoma of the breast, the greater the tendency for mestatasis. This theory however, does not explain femoral metastasis from a carcinoma of the tongue, or humeral deposits from carcinoma of the rectum or urinary bladder.

Metastatic carcinoma, may be divided into three types, namely: 1. Osteoblastic. 2. Osteoclastic. 3. Combination of the two.

Osteoblastic types are usually slow growing and cause increased density of the bones. This type of mestastasis is not as common as the osteoclastic and usually follows carcinoma of the prostate and occasionally scirrhus carcinoma of the breast and carcinoma of the cecum. The patient with osteoblastic metastasis usually lives longer than the osteoclastic type and has less pain. The x-ray findings are quite typical, causing a sclerosis of the bone, usually homogeneous, with no increased trabeculization nor widening of the bone.

Frequently with carcinoma of the prostate, circular homogeneous nodular areas of increased density can be seen in the pelvis.

Occasionally the osteoblastic type of metastasis is confused with Paget's disease. The increased trabeculization in Paget's disease is characteristic.

The osteoclastic type of metastasis is the commonest type and is characterized by bone destruction. Multiple worm eaten areas, small at first, are usually seen. These areas grow, often

rapidly, and to a large size, frequently destroying the entire circumference of a bone. The femur for example, may show an area through the shaft completely destroyed. The edges of these areas are usually irregular in contrast to myeloma.

The areas usually occur in the region of the nutrient artery. Cartilage is resistant to the progress of neoplasm. In the body of the vertebra, the collapse of the body is usually a late finding, due to the firmness of the tumor. The articular surfaces are only invaded very late in the disease.

It has been our experience to find lesions which pass through joint surfaces inflammatory, and we always consider them as such until proved otherwise. Another important finding is the usual multiplicity of bone lesions when due to metastatic tumors. It must be remembered however, that inflammatory lesions may produce multiple bone lesions. The history is of great value in determining the nature of the lesions. It is often difficult and occasionally impossible, to differentiate a rapidly growing sarcoma from a single metastatic carcinomatous tumor. If the sarcoma is of the small round cell type, which is very malignant (malignancy usually varies inversely with the size of an individual cell) the bone may be entirely destroyed, the same as occurs in an osteoclastic metastasis. The patient should be completely examined and the bones rich in red marrow radiographed and usually, if not at the first examination, in a short time other lesions will be identified. Pathological fractures through neoplastic tissue, whether primary or secondary, are quite common.

THE SURGERY OF BONE TUMORS

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In considering the treatment of bone tumors it is necessary to know first that we are dealing with a tumor and second whether it is benign or malignant. From this information we decide whether the treatment shall be conservative or radical. We must also know the variety of benign or malignant tumor, as this further aids in determining the treatment. In case of benign tumors we may leave small lesions alone or treat others by excision or x-ray. In the case of malignancy, we may treat by radical surgery or by radical x-ray, according to the variety of the lesion.

Of the benign tumors, osteoma is the commonest. There are two varieties, the cartilaginous osteoma or exostosis and the fibrous osteoma. Cartilaginous osteomas are met with on the bones of the trunk and extremities. They are usually nodular protruberances about the ends of the shafts and are capped by a layer or by islands of cartilage through which growth takes place. Most frequently they are single, but there are cases in which the condition is multiple and the tendency to run in families is marked. Cartilaginous exostoses are ordinarily removed only when they are of sufficient size to produce objectionable deformity or interference with function. If they are chiselled through at the base so that all of the cartilage cap is removed, they do not recur. A small percentage of cartilaginous exostoses change into chondrosarcoma, and since the risk of removal is ordinarily very small it is a question if all single exostoses and large multiple ones should not be removed by operation to prevent the possible development of malignancy.

X-ray treatment of the cartilaginous exostosis has been shown by Druckman to arrest the growth of the tumor and cause rounding off of its superficial portion. While this form of treatment should not be employed in preference to operation in the young, because of the liklihood of x-ray interference of longitudinal growth of the shaft, it might be used with success in adults in case there is continued growth of the tumors.

Fibrous osteomas arise almost entirely in the bones of the head that are preformed in membrane. They may spring from the outer or inner table of the skull and not infrequently from the wall of the frontal ethmoidal and maxillary sinuses. Excision of cranial osteomas may be indicated in case there are symptoms of pressure on brain or external deformity. Sinus osteomas may lead to obstruction and infection and osteomyelitis of the osteoma may lead to sequestration within the bony cavity. Operative removal may be difficult because of inability to completely excise the tumor, but it is often necessary in order to get rid of the infection in the sinus.

Osteoma of the jaw may be single, but in some instances both upper and lower jaws are in-

Read before Joint Meeting of Sections on Radiology and Surgery, Eighty-fifth Annual Meeting, Rockford, May 21, 1935.

volved. Sometimes the lesion is circumscribed and may be completely excised. In other cases the bone is diffusely infiltrated and only partial excision is possible. But as a rule excision should be carried out. It is important to know that x-ray treatment materially restrains growth of fibrous osteomas, whether in skull or jaws, and it should be used postoperatively when the tumor has been partially excised or when operation is contra-indicated because of inaccessible location. I have seen the remaining tumor held in check for many years by irradiation, both in the case of cranial and jaw osteomas.

Chondromas rank next in frequency to osteomas. They are located especially in the phalanges of the hands and occur as single tumors. The pedal phalanges are rarely involved. A single central destructive lesion in a finger bone proves to be a chondroma in the great majority of cases. It may be successfully treated under local anesthesia, by excision of a window, thorough curettage of the cartilaginous interior, cauterization with phenol, and closure of the wound with the bony cavity filled with blood. Single chondromas are rarely seen within the ends of the large bones of the extremities, tumors so situated being either benign giant cell tumor or solitary cyst. Multiple cartilaginous tumors in the ends of the bones of one or two extremities are occasionally seen in the picture known as Ollier's dyschondroplasia. Such lesions may call for local treatment in case they produce deformities as in the hand. Chondromas are more likely to become malingant than exostoses or fibrous osteomas, and for that reason should be treated by operation. Chondromas of the ribs are not uncommon and are especially inclined to change to chondrosarcoma. Benign giant cell tumors are met with very largely in adult life, as contrasted with solitary cysts which are seen most frequently in children. When located in an extremity they are best treated by the application of a constrictor, excision of a window of cortex for the entire length of the lesion, thorough curettage, swabbing with phenol, neutralization with alcohol, filling the cavity with salt solution and tight suture of the soft parts followed by removal of constrictor and plaster of Paris immobilization. Moderate x-ray therapy should be applied as soon as the wound is healed and temporary cast removal is feasible. This results in a high percentage of cures, whereas operative treatment only, or x-ray treatment only is followed by a fair percentage of recurrences. If there is recurrence in the face of combined operative and x-ray treatment, malignancy should be suspected and the lesion biopsied again. I have had one instance of sarcoma developing twelve years after radium treatment of benign giant cell tumor with apparent cure. Hemangioma of bone is relatively common, but in the great majority of instances a vertebra is involved, the lesion is small and no symptoms result from it. Occasionally the spinal cord is compressed and in such cases it has been shown by Bucy and Capp that x-ray treatment will usually control the lesion and result in disappearance of pressure symptoms. Hemangiomas in the extremity bones usually produce a characteristic sun-burst effect in roentgenograms which makes their diagnosis possible. Recent experience, as that of Capp and Bucy has shown that the lesion may usually be controlled by x-ray treatment. However, in certain cases excision may be advisable. Little is known about malignant degeneration of hemangiomas.

Malignant Tumors. In general, malignant bone tumors in the limbs, regardless of the variety, should be treated by amputation when there are no evidences of metastases. The single exception to this rule is perhaps the Ewing tumor, or undifferentiated round cell sarcoma. Experience has shown that by the time the diagnosis of this lesion is established metastases already exist and that amputation is followed by the appearance of lesions elsewhere within a short time. Consequently the best treatment for them is irradiation therapy, since the response is usually striking, both in case of the primary tumor and in case of the earlier metastases. Osteogenic sarcomas are lesions showing tumor ossification and the response to x-ray treatment is usually negligible. On the other hand, amputation results in a five year cure in at least fifteen per cent. of the cases. Chondrosarcoma is more amenable to x-ray control. I have one patient on whom x-ray treatment was started four years ago for a large chondrosarcoma of the ilium. It has increased only slightly in size and has undergone a considerable degree of ossification without showing evidence of metastases up to the present time. However, experience has shown that metastases ultimately result and that operation when feasible gives the best results. Fibrosarcomas and angiosarcomas also respond poorly to x-ray treatment and when lo-

cated in the extremities they call for amputation. Sarcomas of the trunk bones should be treated by wide excision whenever possible; otherwise by irradiation therapy. Sometimes the tumor may be inoperable at first but after x-ray treatment, with shrinkage of the growth, excision becomes feasible. Nine years ago I biopsied such a case of round cell sarcoma of the clavicle. It was then treated by x-ray with subsidence of the tumor. Six months later I excised the clavicle with the adjacent soft parts and the patient has since remained free from recurrence. Local excision of an involved extremity bone with replacement by a bone transplant is an unjustifiable procedure, as recurrence of the sarcoma has nearly always been the result,

REPORT OF A CASE OF BONE TUMOR

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Since the time in 1860 when Nélaton published an exhaustive monograph, the literature on bone tumor has become very voluminous, and especially has it piled up since the study of bone by means of the x-ray. This latter method of bone study is recently credited with being the most important one when employed by a roentgenologist who is fortunate enough to have had good medical and surgical experience.

Kirklin and Moore say that the roentgenologic study is not single but dual, those showing trabeculation and those not. In those not showing trabeculation, differential diagnosis is to be made principally from enchondroma and bone cysts. The first expand the bone cylindrically. Cysts are not trabeculated and enchondroma spring usually from the small bones of the hand.

Baetjer and Waters' method of analyzing bone tumors consists in taking four points as a basis of classification, viz:

1. Origin of tumor.
2. Presence or absence of bone production.
3. The condition of the cortex.
4. Invasion.

They suggest that this is a rough outline for analysis and that if two of these points can be established they frequently lead to a correct diagnosis.

For a basis of Roentgen diagnosis the following historical study is also added. Tumor can be caused by a disturbance of

1. Nutrition.
2. By infection.
3. By trauma.

The case which is to be reported is considered as resulting from trauma and was diagnosed as a giant-cell tumor.

Kirklin, Pierce, Coley and Pfaehler have recently published articles in which they have reported findings in 206 cases. These, of course, do not cover a complete search, but is a sufficient survey to govern the frequency as to involvement and which show 17 of the ilium or a little over 8%.

The age incidence in this particular anatomical location is more frequent under thirty years of age. (Third and fourth decade of life.)

Sex incidence in these reported series indicates that males are more liable than females in about a two to one ratio.

Kirklin quotes Codman as stating that the average pathologist sees but ten in a life time. Since, my diagnosis of this case as being a giant-cell tumor is a rather bold one, and was made for the purpose of instituting treatment and not for statistical use and is presented for the purpose of eliciting discussion, I feel bound to agree with the conception that giant-cell tumors are not always differentiated by roentgenograms, and not wishing to bore you with padded quotations, please refer to recent exhaustive reports of Ewing, Geschickter, Codman and others for diagnostic differences, and for treatment to Pfaehler, Groover and Christie, Herendeen, Evans and Leucutia and Coley.

In the event of trauma the vitality of a part can be completely destroyed if sufficient in intensity to arrest the circulation of body fluids and of such a character as to prevent a return thereof. The skin can remain intact while the deeper tissues are crushed, as for instance a heavy body passing over a foot. A blow over a part where only a thin layer of tissue intervenes between skin and bone may loosen the periosteum. Following trauma the process of repair is immediately instituted by nature and simulates considerably the normal program of bone waste and repair which is constantly taking place in bone as well as in other tissues. Normally this process is very slight but becomes speeded up in the presence of pathology. Should there be a concomitant regressive disturbance of nutrition, in-

Read before Joint Meeting of Sections on Radiology and Surgery, Illinois State Medical Society, Rockford, May 21, 1935.

terference with the histological function of the osteoblasts or osteoclasts will result in imperfection in repair and tumor cells will be the probable result. This being particularly true in weight bearing bones if the load be great and continuous. The process may extend over a period of years with remissions and exacerbations suggesting that repeated roentgenograms be made in a follow up.

Case History: L. E., aged 17 years, raised on farm. Parental history essentially negative. Had usual childhood diseases, measles, scarlet fever, with no complications. Developed normally of height and weight within standard limits. Had appendicitis at 15 years of age with uneventful recovery. In the fall of 1932 while playing ball was struck by a line drive over left ilium, incapacitating him. The skin was not broken and the swelling but slight. In two weeks he seemed well again, but in six weeks he complained of pain in left hip extending down the leg. He was taken to an osteopath, who succeeded in two months in putting the boy in the hospital unable to walk and in severe pain, with decided increase in size of tumor and increased swelling. The chronic swelling was aspirated, but only thick blood obtained. This was probably the muco-jelly spoken of by older writers. Left ilium seemed to be thickened. Swelling was semi-fluctuant.

Temperature	98°
Basal Metabolism	+31
Erythrocytes	5,050,000
Haemoglobin	85%
White Corpuscles	8,200
Neutrophiles	60%
Small lymphocytes	32%
Large lymphocytes	8%

After a week of morphia he was turned over to me for diagnosis and suggestions for treatment.

On the basis of at least a tentative diagnosis of giant-cell tumor he was given Roentgen therapy with almost immediate relief from pain.

In two weeks he was walking, but with a decided limp. In two months he was not in any kind of distress, but continued with a slight limp. In eleven months he was as active as ever and was allowed to enter a golden gloves contest. He reached the semi-finals and was knocked through the ropes, but suffered no injury from the bout and started at it again.

Several months later he was put at tile ditching. After being at this a week a cave-in doubled him up, resulting in injury to the same hip. Probably because the parents still owed me he was taken to one who placed him in a cast which became tighter and tighter and in ten weeks the boy died. I did everything possible to obtain an autopsy, but was informed that death resulted from sarcoma.

I feel sure that I have seen three other cases in my own work and being very much personally interested in this boy I visited bone clinics and libraries, and consulted monographs and the experience has suggested the conclusions which do not differ from others, viz:

Intensive expert Roentgen study, with conferences with consultants in order to obtain a true concept of the patient.

Give patient the benefit of any uncertainty by instituting Roentgen therapy since the least that can be expected is restraint of growth.

Avoid biopsy because of danger of breaking down defense mechanisms.

No doubt some failures to perform a cure can be attributed to a panicky or economic psychology resulting in an interruption of the program for attacking the problem.

Danger of Roentgen therapy to surrounding tissues is slight if thoroughly understood.

To quote Pierce: "Roentgenology in the case of persons suffering from giant-cell bone tumor has reached sound and definite conclusions."

DISCUSSION

Beveridge Moore (Chicago): Mr. President and Members of the Society: I am very sure we couldn't find any two men more competent to discuss this question of bone tumor than Dr. Phemister and Dr. Jenkinson from the different viewpoints they have shown. There is not much I can add to what they have already said. There are one or two things I would like to accentuate, however, if it is possible to do so. In the first place, Dr. Jenkinson said we must not depend too much on x-ray diagnosis alone. I believe that is quoting him fairly accurately. I think we all agree that the diagnosis of malignancy cannot be made on x-ray alone. We must take the clinical history and the clinical findings, also the pathological findings, into consideration. I notice, in addition to that, the pathologists are now beginning to be a little cagey about committing themselves on a definite diagnosis. They also want to know what the roentgen findings were, what the clinical history was and the clinical findings before they will commit themselves to a diagnosis.

One point which Dr. Phemister mentioned needs to be emphasized as much as we possibly can do, which is that the main thing in the early diagnosis is to know whether it is malignant or whether it is not malignant. In this important differentiation, we need to take all these clinical points into consideration.

There are a number of things which we must take into consideration. One is the early symptoms of malignancy; multiplicity of lesions usually point against malignancy unless it is metastatic carcinoma. In that case, there may be multiple lesions, but in sarcoma it is usually a localized lesion in one place. The speed of the growth of the tumor is another point we must take into consideration. Some of these sarcomas are very rapidly growing things. They will increase almost over the weekend. I should like to illustrate what I have to say from a collection of cases,

all except one of which are taken from Shriners' Hospital. One is the case of the old, not common but not uncommon, osteomas, a non-malignant type. It might be suspected of being malignant because it showed a great many lightened areas at the back of the thigh. It was a nuisance because it hurt when he sat down; there was no pain otherwise. There were a number of other tumors, including those on the forearm. They were excised because they were interfering with motion. We didn't think it was malignant. It was ordinary everyday bone tissue when we got it out.

We had one case which had some features which made it look as though it might be malignant; it was multiple, which speaks rather against its being malignant. It looked as though it might have been cystic. As a matter of fact, when we did a biopsy, partly to get a biopsy and partly to correct the curve in the femur, we found it was cystic. We found little white things like sand and gravel. We took them out; you could crumble them in your fingers. When we got the section, instead of being malignant or instead of being a plain, ordinary cyst, it showed pure chondromatous tissue, nothing but cartilage. It is the second I have seen which has had the same findings, granular stuff loose inside which turned out to be a calcium salt. I am not sure but what they may represent one evolution of an enchondroma. It became cystic and calcified. It may represent sort of a benign evolution of an enchondroma.

We had a man forty-six years old who had little pain. He had one severe attack of pain but very little. The attack of pain had been about six weeks before the x-ray was taken. If the attack of pain represented the time it began to any extent, it had grown rather rapidly, but the absence of pain was confusing. It looked almost as though it had been benign, some type of infection. We did a biopsy and found it was a fibrosarcoma. There is a mass in the x-ray and you can see it has broken through the cortex of the bone. It is barely possible when that broke through it represented the attack of pain. The fibrosarcoma is eating away the bone and in places has left a little island.

Another case illustrated was rather an innocent looking thing radiologically. The patient was practically moribund when she came to the hospital. In addition to what was evidently an osteogenic sarcoma, she had metastasis in the lung and died a very few days afterward. Although it was rather an innocent looking affair, it had a fairly good defense reaction in the bone around it, some destruction, and evidently an osteogenic sarcoma. I don't know the particular type.

We had a case that turned out to be a round cell sarcoma. The youngster lasted about three months. There was a fair amount of defense reaction, one of the old sunburst type. The case had not been treated by x-ray when we saw it. The parents were unwilling to listen to even a biopsy and the child was taken to another hospital where it died. At the autopsy it showed the usual findings.

Rather an interesting case that brings out a number of different points was that of a boy who came to the hospital with a diagnosis of tubercular spine with paraplegia. He had a kyphos with some destruction of one of the bodies of the vertebra, but the destruction did not look exactly like tubercular destruction. There is simply a plate of bone left. There were little areas of spongy bone evident in the lamina and some in the spinous process, as it turned out later, of the vertebra. We watched him a while. These became a little harder, with no marked change in size. It was decided to do a biopsy. We did the biopsy, taking a section out of the spinous process and out of the lamina of the vertebra. These portions were divided into three different pieces and taken to three different pathologists, all extremely competent men. We have two entirely different diagnoses and a third in the offing which is also different but has not yet been officially rendered. Any of the men know what they are talking about, but the case simply indicates the difficulty in diagnosis. In this case a section of one portion showed beginning cystic formation with some fibrous infiltration, with some of the bone left in, diagnosed osteofibrocystica. A different portion showed what was diagnosed as hemangioma. The pathologist who diagnosed this as hemangioma and the pathologist who diagnosed it as osteofibrocystica traded sections and each agreed the other man's diagnosis was right. The two sections couldn't have been over a quarter of an inch apart at the outside and yet showed utterly different fifindings. It simply illustrates how we have to be careful in our diagnosis and in our conclusions. Even the most competent pathologists make different diagnoses because the tumor itself will differentiate in different portions which are very close together.

Dr. Fred H. Decker, Peoria: This symposium on bone tumors has again, as usual, shown us how little we actually know about primary malignant bone tumors. The relatively low percentage of cures cited by Dr. Phemister makes us realize that a great deal needs to be done in the direction of treatment. Today, however, we have been extremely fortunate in having such splendid papers presented by men who have not only had a large amount of material to work upon but have had the ability and means to make the most of it. Dr. Jenkinson showed us some fundamental ideas in the diagnosis of bone tumors. Pfahler, some time ago, said diagnosis was of the greatest importance and apparently, from the trend of the remarks today, diagnosis is still the thing that everything hinges upon.

It is a question in my mind how many amputations have been done on tumors which were possibly benign; on the other hand, there have been many malignant tumors that have been classed as benign and, when the true condition was found, it was too late to do the patient any good. I frequently think of the report by Dr. Codman of the first 148 cases which were submitted to the registry of bone sarcoma. Of the 148 cases, eighty-two or 55% did not come under this category. Over half the tumors that had been submitted as bone sarcomas eventually were not bone sarcomas. The original lesion that caused Codman to institute this organization of bone sarcoma eventually proved to be a cancer from other than bone; in other words, a metastatic lesion. The diagnosis, then, is

important and it is sometimes extremely difficult for the surgeon with the wound open before him or for the pathologist with the slide before him to make the correct diagnosis, as has been pointed out so ably by Dr. Moore.

While we should not depend entirely on roentgenograms, it is true a correlation of these may help us on the way. One reason, as Dr. Moore also pointed out, is the fact these tumors have so many points in common. As he said, one area in a tumor may present one pathological picture and another era an entirely different picture. These tumors all originate from a cell which is supposed to be a forerunner of all the types of tissue that forms bone, that is cartilage, fibrous network of bone and the bone itself. All of these different types of tissue are usually present in some proportion. One may be present a great deal more than the other, but still all are present to some degree. The real criterion on the activity of a tumor is not so much the type of cell as it is in the number and quantity or quality of the undifferentiated cells.

If diagnosis is so extremely difficult, I believe it is essential that time be taken in making a diagnosis. If this be done, the interval of waiting may be advantageously used by instituting therapeutic irradiation, either x-ray or radium. By that I do not mean to infer that all tumors should be treated by x-ray or radium, but I mean that x-ray or radium should be used in the interval between the time that the patient is first seen and until actual diagnosis is made and until amputation or whatever type of surgery is used is finally decided upon.

It is obvious that a certain type of tumor, such as the osteogenic type of sarcoma, is not going to yield very much to x-ray. Basically, we know that cells that are as well differentiated as they are are not usually very rapidly growing, nor are many divided cells present; hence they are not going to give us very much x-ray reaction. But in those cases, since they are not very rapidly growing, time itself is not so great a factor. In a tumor which is a rapidly growing tumor, the x-ray or radium will frequently be more effective. I believe eventually there will be a combination of x-ray and surgery which might involve the use of the newer methods of irradiation in single small doses, but greater total doses delivered over a longer period of time.

I was very much interested in the case which Dr. Grote showed us. The question came to my mind as to how much reaction he got after his x-ray treatment. By that I don't mean the reaction in bone itself, but I was interested particularly in the clinical reaction. Some cases in the literature report that some weeks after treatment to giant cell tumors the skin becomes very red, not x-ray redness but a definite redness due to the effect on the tumor itself. This is occasionally accompanied by a great amount of swelling. I would like to hear Dr. Grote make some remarks about that. I enjoyed the presentations immensely.

Dr. Edward L. Jenkinson: I want to admit definitely I do not think we are trying to put the x-ray diagnosis in a bad position if we really admit there are a great many of these tumors we cannot diagnose. I would like to ask Dr. Phemister one question. I would like to have his opinion, from his experience, as to how common primary bone tumors really are. While I was connected with three rather large hospitals in Chicago I do not believe I saw on the average over one primary bone tumor a month. I think each one of those tumors I saw was observed by practically every member of the staffs of the three hospitals. Probable eight or ten of the men had five by sevens or slides made of each one of the tumors. I am wondering whether all these tumors we are seeing have not been reported four or five times by different men, and that we are reporting the same tumor several times. I would like to hear from Dr. Phemister as to how common he thinks primary bone tumors are.

I did not intend to speak about the roentgen therapy of bone tumors. Personally, I think bone tumors as a rule are highly differentiated and I do not believe highly differentiated tumors usually respond well to roentgen therapy. With those tumors that do respond, I do not think you have to take the skin off and destroy all the tissue. With those tumors that do respond and those that do not, it has been my experience, no matter what I did for them it did not seem to make much difference in the ultimate result. There are three cases which I can call to mind who are alive after ten years, not including the one that Dr. Phemister reported. One was a young girl who was a nurse at the hospital some ten years ago, who had a primary tumor of the proximal third of the fibula. I thought it was a giant cell tumor. Dr. Halsted removed it grossly. Dr. Le County looked at the section and it was a malignant osteogenic sarcoma. The patient had some irradiation after removal and is still alive. Two others of the same condition, all alive, were subjected to surgery.

Dr. D. B. Phemister, Chicago (closing): I have no definite statistics on the relative frequency of primary and secondary malignancies of bone, but in general the great majority of skeletal neoplasms demonstrated in the average x-ray laboratories are metastatic carcinomas.

I neglected to speak of excision of early sarcomas of bone in the extremities. In general I believe the practice is a bad one. In a few cases I have excised tumors and transplanted bone to the defect, but there has always been recurrence and I do not believe that the procedure is justifiable except in very rare circumstances. I think that the most likely diagnosis in Dr. Moore's case is that of hemangioma of the spine and the extensive collapse of the vertebra with cord compression raises the question if tumor has not been transformed to a hemangio-sarcoma.

Dr. Grote: The patient to whom I referred was treated not according to the Coutard method but was given 400 "r" in the first four weeks. At the end of that time there was some reaction. We held a little conference in regard to it and just thought it was reaction, but kept on treating. The swelling disappeared and the patient went on to improvement, as noted in the paper. The reaction was not severe; however, there was some.

HEPATO-DIAPHRAGMATIC INTERPOSITION OF THE COLON; REPORT OF A CASE

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Anomalies of the colon either developmental or acquired are usually of academic interest only. There occasionally occurs a variation from normal to which clinical significance may be attached. Hepato-diaphragmatic interposition of the colon, whether temporary or permanent, may be classified in this group. A case of permanent incarceration of the colon in the subphrenic region stimulated our interest in this seemingly unusual condition.

The first description of interposition of the colon was that of Cantani[5] in 1865. Beclere[2] in 1899 described it radiologically. In 1905 Cohn and Meyer[8], and in 1908 Weinberger[26], published accounts of cases of this type. But not until Chilaiditi[6] in 1910 reported three cases of temporary interposition had a thorough survey of the field been undertaken. Weiland[27] published a case in 1915 which was diagnosed as abscess preoperatively, but which proved to be interposition of the colon.

In 1922 in his book of radiological diagnosis, Assmann[1] discussed displacement of the colon in a case of atrophic liver of luetic origin. Three years later Burger[4] published three cases of partial dislocation of the liver lobes due to shrinking of the duodenohepatic ligament, thereby allowing subphrenic fixation.

Dehn[9] in 1926 reported a case in which the right liver lobe was small. In the next year Podkaminsky[18] discussed the pathogenesis of interposition of the colon in connection with a report of two cases.

The largest group of cases reported was that of Uspensky[24] in 1928—eight permanent and fourteen temporary instances of interposition of the colon. In the same year Gianturco[13] reported a case of interposition which was treated surgically.

In the literature there are reports of cases diagnosed clinically by Meissner[17], Chvosteck[7], Winkler[29], and others. Interposition of bowel between the liver and anterior abdominal wall in cases of general Glenard's disease were reported by several including Bonnet[3], Frerichs[12], Landau[16], and later Rosenfeld[19].

Emil Just[14] in 1929 reviewed the literature carefully in connection with the report of three cases. Two cases were of intermittent interposition and were not operated upon. One case was treated surgically. The next year Soupault[21] described an instance in a patient with duodenal diverticulum and perforating duodenal ulcer. Two cases of hepatoptosis with hepato-diaphragmatic interposition of the colon were reported by Tremolieres and Pierron[22] in 1930. The seventeen cases reported by Tremolieres and Tardieu[23] in 1931 in practically every instance indicated certain etiological factors prevailing throughout the series. In connection with his treatment of cases of pulmonary tuberculosis Slavin[20] recently reported two cases of interposition of the colon following phrenectomy.

Case Report: H. S., No. 4464, aged 58 years, male, married, European, Jewish, shoemaker. The patient was admitted on 8-14-34 complaining of "stomach trouble" of many years' duration. There had been recurring episodes of upper abdominal "uneasiness," anorexia, weakness and associated weight loss. "Gas" and bloating were prominent symptoms. In 1929 such an episode supposedly resulted in rather marked exhaustion. Abdominal exploration (elsewhere) through a left rectus incision was reported as having disclosed nothing significant. The patient gained weight thereafter and was noticeably improved for a short time. Reappearance of the old symptoms in a very greatly exaggerated form compelled the patient to stop work and seek medical advice again.

Physical Examination: B. P. 180/110; p., 80; T., 98. The patient was poorly nourished and very asthenic; facies haggard. The chest was long and thin, the epigastrium flat, and the abdominal muscles weakened. The costal angle was acute at the sternum. The left rectus scar in mid-abdomen was healed. There was a tympanitic note in the area of normal liver dullness. Reflexes were normal.

Laboratory: Examination of the urine gave negative results on several occasions. The hemoglobin content of the blood was 92%; lymphocytes, 33%; monocytes, 3%. The Kahn reaction of the blood was negative. Gastric analysis showed total acidity 40 and free hydrochloric acid, 5. Roentgenologically, the gall bladder was normally functioning. The presence of gas in what appeared to be an unusually high lying loop of colon prompted its further examination (Fig. 1). The right colon was visualized high in the right subphrenic region (Fig. 2). The stomach was of "cascade" type.

Diagnosis: The diagnosis of interposition of the colon between the diaphragm and liver was made.

Preoperative Treatment: Preoperatively, the patient was placed upon a low residue diet for five days. Fluids were increased. Activity was restricted moderately.

Read before Section on Surgery, Eighty-fifth Annual Meeting, Rockford, May 22, 1935.

The patient was given three series of high colonic flushings for two days before the operation.

Surgery: On August 29, 1934, the patient was submitted to surgery. The liver was about three-fourths that of the normal sized organ and was markedly ptotic. The color and general outline were normal. The stomach and duodenum were normal. The gall bladder was large, green-blue, and contained no stones. The transverse colon was elongated and the mid and right portion was found adherent to the dome of the right side of the diaphragm and to the upper surface of the right lobe of the liver (Fig. 3). The colon seemed normal otherwise.



Fig. 1. Cholecystogram in which high lying loop of colon is visualized as aerogram.



Fig. 2. Radiogram showing elongated and distended transverse colon completely filling the right diaphragmatic dome and displacing the right liver lobe.

Technique: An exaggerated incision as for cholecystectomy was used. The adherent colon was freed by blunt and sharp dissection. Several interrupted chromic sutures were taken in the longitudinal band of the colon and fixed to the anterior parietal peritoneum about the level of the umbilicus. The falciform ligament was divided and shortened by sutures in such a manner that 4 cm. of the ligament was available for use in joining the ptotic liver margin to the lower border of the costal arch. Interrupted braided silk sutures were used in fixing the liver margin to the falciform ligament. The upper border of the falciform ligament was then sutured to the costal border. The peritoneal folds at the margins of the gall bladder were utilized to bridge the gap between the liver and costal arch for from 4 to 5 cm. The remaining space lateral to the gall bladder was closed by braided silk mattress sutures deep in the liver tissue and attached to the costal margin. Iodoform gauze was placed between the diaphragm and liver in several places where the space between the sutures would allow. A Penrose drain was placed at the Foramen of Winslow.

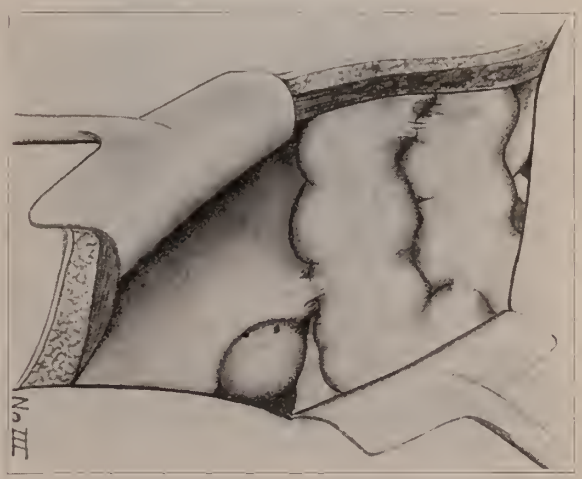


Fig. 3. Diagrammatic sketch showing the interposed, adherent portion of the transverse colon.

Course: Postoperatively, the patient lay perfectly flat for three days; the foot of the bed was then elevated a few inches, for the purpose of removing some of the tension from the hepatic sutures. By the fifth postoperative day the temperature and pulse and respiration were normal. There was considerable pain along the right costal margin for a few days. The Penrose drain was removed on the third day and the iodoform gauze packing was removed on the fourth day. Water was taken by mouth in twenty-four hours. A full bland type of diet was taken on the seventh day postoperatively. The patient was up on the twelfth day and was able to leave the hospital two days later, but he preferred to remain a few days longer just "to be sure."

The patient appeared at the clinic for observation two months later and reported no gastrointestinal complaints, a gain in weight and that he was working every day. The examination of the colon by clysma showed it in good position (Fig. 4).

Anomalies of the colon according to the observations of Kanter and Schecter[15] may be those of length, rotation, descent, and fixation.

The colon must be of sufficient length and mobility to reach the hepatodiaphragmatic region. Most observers in reporting their cases have noted the increased length of the transverse colon. From Vietor's[25] research it would appear that distention of the colon causes it to have a tendency to rotate on its mesentery, there-



Fig. 4. Radiogram two months after operation showing the colon in excellent position.

after rising and presenting greater prominence anteriorly. Furthermore, the transverse colon may swing upward and be found projecting forward at any agle up to the vertical.

In addition to the meteoric colon, many observers emphasize the factor of some type of inflammatory process. A perforating duodenal ulcer was present in Soupault's[21] case. In Tremoliere and Pierron's[22] cases the colon was dilated above the adhesions, making it appear that the adhesions formed in conjunction with a pyloric ulcer, and the subsequent distention pushed the intestine into the bizarre position. Tremoliere and Tardieu[23] added further evidence supporting this contention in the report of their cases in which the interposition of the colon was associated with chronic inflammation and the formation of pericolic adhesions. The resulting distention of the colon was again given great importance in affecting the conditon. Burger[4] and Weiland[27] noted pyloric and duodenal ulcers in their cases.

Podkaminsky[18] regards interposition as an expression of abnormal intra-abdominal pressure. He also lists as causes, adhesions in the region of the colon resulting from parapyloric ulcers, changes in the size of the liver, weakness of the hepatic ligaments, hepatoptosis, and megacolon. These conditions may be present in various combinations.

Uspensky[24] adheres to the hypothesis that inflammatory processes in the region of the colon lead to the later formation of adhesions which fix the colon in abnormal sites. He considers as important factors pleuro-diaphragmatic peritoneal adhesions, Hirschprung's disease, changes in form and size of the liver. He attributes temporary interposition to disturbances of the balance between the specific gravity of the liver and that of the colon, as in ascites and pneumoperitoneum.

Although the migration of the colon to lodge in a subphrenic position is of great significance, the factors underlying the formation of the aperture between the diaphragm and the liver are obviously of equal importance.

Investigators vary in their opinions on the subject of loss of hepatic contact with the diaphragm. Some give the anomalies of length and strength of the hepatic ligaments as the cause. Just[14] contends that the ligaments play a very small part in sustaining the liver in apposition with the diaphragm. He believes that the pressure within the abdomen maintains the filled bowel in a lowered position, consequently exerting an upward influence on the liver, whereas, the airfilled bowel will rise and tend to displace the liver downward.

It is common knowledge that the liver edge descends during celotomy when the normal intra-abdominal pressure is disturbed. Free gas in the abdominal cavity from artificial pneumoperitoneum or perforation of ulcers (such a case reported by Weiland[27]) would conceivably destroy the normal intra-abdominal pressure.

Wessler and Jaches[28] in 1923 pointed out that the downward displacement of the liver in eventration of the right diaphragm and in hepatoptosis was one of the most important features in the occurrence of interposition of the colon.

Some observers are prone to point to the diminution of the size of the liver as the basic cause of its optosis. This condition was present in the cases reported by Assmann[1] and Dehn[9] and Just[14]. The decrease in the size of the liver plus the loss of normal plasticity has been suggested as the pertinent combination of factors in the interposition of the colon. Zucchi[30] points out that as long as the liver is of a plas-

tic consistency, it does not lose its contact with the anterior abdominal wall. He believes it is only when the loss of plasticity of the liver is accompanied by an abnormally long right colon that interposition can occur.

Congenital variation or absence of some of the hepatic ligaments has been noted. General visceroptosis has been alluded to with its resultant excessive traction on the hepatic ligaments, particularly the gastrohepatic.

Slavin's[20] cases of interposition after induced phrenic paralysis indicate that varying degrees of weakness or malfunction of the diaphragm may be important etiological factors in these cases. He suggests further that right-sided artificial pneumothorax tends to weaken the contact between liver and diaphragm and facilitates their separation.

Clinically a few interesting and salient features are manifested by the patients suffering from interposition of the colon. They are frequently of the asthenic, visceroptotic type and present the characteristic anxious facies. The abdominal pain may be general or localized and accompanied by nausea and ofttimes by vomiting. The pain may be referred to the right shoulder, but more often it passes about the abdomen and is accentuated by deep inspiration. Constipation and meteorism are constant symptoms. The epigastrium may be distended. The normal anterior costal liver dullness is lost, and there may be a palpable mass in the right lower quadrant. The diagnoses is supported roentgenologically.

These cases are frequently complicated. Gall bladder disease, peptic ulcer, obstructive lesions of the colon may be added to the interposition of the colon, often making the differential diagnosis extremely difficult until it occurs to the observer that the visceroptotic type must be suspected of this condition. The x-ray clinches the diagnosis.

In the cases of permanent incarceration of the colon in the subphrenic region, surgery offers much if symptoms are severe. Conservative measures may suffice when the symptoms are mild.

Hepatopexy, according to the technique of Marchant and Langenbuch, fixes the liver to the abdominal wall with sutures either through and through, or partially through the upper liver surface only. Ferrari, Richelot advise the placing of a drain between the liver and diaphragm to enhance formation of adhesions. Giordana shortens the falciform ligament and places small crystals of phenol on the upper surface of the liver. Another method of producing adhesions is that of Bobroff who scarifies the upper hepatic surface. The technique employed by Gianturco was that of a combination of interrupted mattress sutures through the marginal liver substance, thereby fixing it to the costal arch, and the iodinization of the upper surface of the liver.

In the case presented we have a definitely splanchnoptotic individual whose transverse colon was found to be elongated and distended. The patient had for many years been troubled with "gas" and bloating—a common complaint of these people. The liver had diminished in size and had lost its contact with the diaphragm. We were unable to determine any loss of plasticity. There was no congenital absence of ligaments. The falciform ligament was relaxed, thereby permitting the shortening as described above.

The long meteoric colon rising as it logically should, has sought the highest vantage point of the abdominal cavity, namely, the diaphragmatic dome. The trauma attendant with the position of the distended bowel may be ample justification for the presence of adhesions. It is then not difficult to account for the exaggerated symptoms accompanying such variations from the normal anatomical relationships.

Although the general opinion is adverse to surgery in conditions akin to this, and we believe the stand a righteous one, such marked findings in this case prompted us to attempt surgical treatment. The result, fortunately, has been entirely gratifying.

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DISCUSSION

Dr. Edward M. Miller, Chicago: Having been asked to discuss the rôle of surgery in visceroptosis, I am very naturally surprised to find Dr. Rogers presenting a paper on "Interposition of the Colon Between the Liver and Diaphragm." The case which he presents has been very interesting and most instructive because I, like most of you, no doubt, have had no similar experience. The chief indication for surgical interference in cases of visceroptosis arises when there is produced an obstruction of the third part of the duodenum by the superior mesenteric vessels which cross its anterior surface. In persons who lose weight rapidly and therefore lose the supporting effect of the normal intra-abdominal fat, this type of obstruction is apt to be very severe and will give rise to symptoms demanding surgical relief by duodenojejunostomy. Where the evidence of obstruction is mild, medical measures aimed to build up the normal weight will be effective. Several lantern slides were here shown illustrating the typical x-ray findings before and after operation.)

Dr. J. C. Thomas Rogers, Urbana (closing): It was impressive to find in looking over the literature that most of the reports were recorded by foreign observers. It is interesting to note that this patient was foreign born, raised in Austria, and later in life came to this country. In response to Dr. Miller's discussion of duodenal obstruction I wish to add that there are reported cases of duodenal obstruction complicating or possibly caused by hepato-diaphragmatic interposition of the colon. I couldn't be certain as to the presence of duodenal obstruction in this case. The subjective symptoms were relieved upon restoring the colon to a more anatomically normal position. If there were duodenal obstruction, it evidently was relieved coincidentally.

PAROXYSMAL DYSPNEA: DIAGNOSIS AND TREATMENT

Leon Unger, M. D.

CHICAGO

By the term "paroxysmal dyspnea" we are limiting our discussion today to the relatively few conditions which are characterized by *attacks* of difficult breathing; wheezing and orthopnea are usually associated. And, in most cases, there is more or less complete freedom from dyspnea between attacks.

The paroxysmal nature of the dyspnea automatically causes us to exclude from consideration all causes of ordinary or non-paroxysmal dyspnea. We, therefore, are not concerning ourselves with such common causes of difficult breathing as ordinary heart disease in the various stages of decompensation; nor are we dealing with anemias, pulmonary tuberculosis, emphysema, lung tumors and other conditions associated with chronic shortness of breath. It is true that a patient with mitral disease may decompensate with associated dyspnea; but in such an event the shortness of breath is usually somewhat constant until compensation is re-established or death intervenes.

Paroxysmal dyspnea is of relatively common occurrence yet its differential diagnosis and treatment seem not to be well understood. In a recent examination for interneships one of the questions was on this subject; a few of the candidates answered intelligently; most failed to grasp the significance of the question and wrote on dyspnea in general, instead of appreciating the paroxysmal nature of the trouble.

What conditions can cause paroxysmal dyspnea? While there are many in which spells

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Read before Section on Medicine, Illinois State Medical Society, May 22, 1935, at Rockford, Ill.

of shortness of breath can occur there are really only three which are important. These are, in order of frequency, bronchial asthma, cardiac asthma and that type of sudden dyspnea which may occur in chronic nephritis; the term "renal asthma" has often been used here.

The differentiation between these three is very important because of the wide variation both in treatment and in prognosis, especially as concerns cardiac asthma and bronchial asthma.

Cardiac Asthma. Despite the fact that cardiac disease in general is common, as we all know, cardiac asthma is relatively infrequent. Paul White,[1] in his recent book on "Heart Disease," states as follows:

"The term 'cardiac asthma' expresses the exact condition better than any other, e. g., 'paroxysmal dyspnea,' for it is a paroxysm of asthmatic and not of ordinary dyspnea; and it is undoubtedly primarily due to the *cardiac condition* and not to some extraneous influence, as is the case in bronchial asthma. It belongs to the chapter of congestive heart failure and yet it is not an ordinary symptom of such failure. It occurs especially in middle or old age with serious heart disease, usually involving the *left ventricle*. The attacks may be mild, short and hardly noticeable; they may be terribly agonizing, ending in pulmonary edema and death; or they may be of any degree between these two extremes. Infrequently cardiac asthma may continue for days or weeks in mild form."

The paroxysms in cardiac asthma are in many respects very similar to those of bronchial asthma. Dyspnea, wheezing and orthopnea are present in both and cough is frequent. Cardiac asthma usually occurs at night; bronchial asthma frequently starts at night but it begins almost as often in the daytime. In every other way, however, the two diseases cease to resemble one another.

Pratt[2] gives a very good discussion of the actual spasms in cardiac asthma. He describes a mild attack as follows:

"The patient, usually a man and more than sixty years of age, goes to bed feeling perfectly well. He may have had slight breathlessness or substernal pain on exertion, for some time, possibly six months or more, but as a rule of slight degree so that he has paid no attention to his symptoms (in fact, in one-third of the cases, there were no symptoms referable to the heart prior to the initial attack of cardiac asthma). He sleeps soundly until he is suddenly awakened by a sense of suffocation and oppression, which causes him to spring upright in bed and if it persists he sits on the side of the bed, or gets up and walks to an open window. The breathing is labored and the feeling that he cannot get air into his chest continues. In a few minutes the attack may cease or he begins to cough. The breathing is often wheezy. The cough is at first dry, but after a short time a little thick mucus is raised, which is occasionally tinged with blood. Cyanosis has been noted only in the severe attacks. There may be an ashy pallor instead of cyanosis. The breathing at length becomes easier and soon afterward the breathlessness entirely disappears. He is able to return to bed and sleeps fairly well with the head low the remainder of the night. The average duration of an initial mild attack is thirty minutes. Including all twenty-six cases, mild as well as very severe, the average duration was one hour."

Rockfelt[3] of London, gives an excellent description of a very severe case of cardiac asthma:

The patient was a woman, 52, with aortic insufficiency for at least three years, with enlarged heart, systolic blood pressure of 160 mm., visible pulsation in the carotid arteries and marked water-hammer pulse; some edema of the feet but no edema in the lungs. During the past year she had nine attack of paroxysmal dyspnea, all similar. The interval between the first two was about three months, but they gradually became more frequent. With one exception all occurred between 10 p. m. and midnight with sudden onset and without any previous warning. On arrival, the patient is trying to sit up in bed; she is anxious and terrified and appears to be aware of the danger of the attacks. The breathing is rapid and difficult. The face is pale and covered with a cold sweat. The lips and nose are livid. The fingers are cold and clammy. The pulse is feeble, small and rapid. The temperature is subnormal. There is a profuse pink frothy expectoration and foaming at the mouth. After a short time consciousness is lost. Over the entire chest are heard numerous coarse bubbling rales. The attacks last about two hours. On one occasion the patient had two attacks in one night between which she recovered consciousness and lost her distress. On the day following an attack she feels quite well and has often been found out of bed.

Cardiac asthma is a very serious condition. It is frequently attended by pulmonary edema as shown by rales at the base of the lungs and by hemoptysis. It appears to be dependent on weakness or acute failure of the left ventricle although the exact mechanism of its production is not known.

How serious the *prognosis* is may be judged from the summary by Palmer and White[4]; these authors found 250 cases of cardiac asthma in a group of 3,100 private and hospital patients with organic heart disease, equal to 8% of the total number of heart cases. Of this 250 who had attacks of cardiac asthma as shown by paroxysmal dyspnea 180 were males, 70 females: all but 14 were over forty years old. The grave prognosis was shown by the fact that 170 of the 250 are known to have died with an average dura-

tion of life of only 1.4 years after the first attack of cardiac asthma. The largest number of cases, 187, were found in the group of patients with coronary disease, hypertension, or both (cardiac asthma was present in 10.7% of this combined group); but the highest relative incidence was in syphilitic heart disease (21.0%) and in chronic nephritis (19.0%). The frequency, duration and severity of the attacks altered the prognosis appreciably only when the attacks were very severe. The coincidence of poor heart sounds, gallop rhythm and pulsus alternans indicated, as a rule, a very short life. Aortic regurgitation, usually syphilitic, was the only common valve defect and occurred in sixty-three of the 250 patients studied.

One very striking feature of cardiac asthma is the patient's fear of death; by contrast, those suffering from severe bronchial asthma are afraid they will not die.

The treatment of cardiac asthma is very important. To prevent the attacks it is necessary to insist on rest suitable to the individual patient and on digitalis in adequate amounts. Such care may prevent the spells or, at least, diminish their severity and frequency. For the attack itself morphine sulphate, subcutaneously, in 1/6 to ¼ grain doses is the best possible treatment. It should be repeated in 15 to 20 minutes, if necessary. An upright position helps a good deal. Some men favor venesection with removal of 250 to 300cc of blood. A drink of whiskey, or brandy, may be of service. Digitalis is not of much use for the attack. Epinephrin (adrenalin) is also almost useless.

Bronchial Asthma. When we turn to the consideration of the more frequent bronchial asthma we enter a much more cheerful field, especially as regards prognosis. It may and does occur at any age. I have one little patient who was born in July and who had hay fever and asthma when two months old. In the majority of patients the asthma begins during childhood or in young adults and there usually is a history of repeated attacks. Some of these occur only in summer time, in individuals hypersensitive to hay fever pollens, such as those from trees, grasses and weeds. Others may occur at any time of the year. The attacks, as a rule, are widely separated at first with long intervals of freedom between the spells. Later on, however, the spells are apt to come on more frequently and, finally, in many cases, the asthma becomes more or less constant and there is no complete freedom from trouble. Wheezing and dyspnea are almost constant. In other words, we are now dealing with chronic, intractable asthma, the most severe type of bronchial asthma. Such a patient may live many years but the prognosis for cure or relief is not especially good.

When we examine a patient with bronchial asthma we usually find dyspnea, orthopnea and cough; wheezing is practically always present and expiration is prolonged. The heart is usually small, the pulse may be slow or rapid, the blood pressure is usually low. The patient feels warm and perspiration is frequent. Fear of death is rare. In long standing cases emphysema often complicates the picture and leads to cyanosis and a barrel chest.

As aids to the diagnosis of bronchial asthma the following findings are helpful: In many of the patients it will be found that they are suffering from or have had other allergic conditions, such as hay fever, urticaria or migraine. Eczema occurs frequently in childhood in persons who develop asthma in later life. In addition, in about 60% of the cases, there is a family history of some one or more allergic conditions, not necessarily bronchial asthma.

Skin tests, thoroughly and properly carried out, are of great aid in ferreting out the cause of the attacks. To be valuable they must fit in with the clinical picture. Lack of time permits us only to insist that the skin tests be carried out early and completely. The patients should not be permitted to have repeated attacks with resultant emphysema.

As further aids to the making of the diagnosis of bronchial asthma, in addition to the skin tests, there will be found, in most cases, an eosinophilia of over 4% in the blood; the sputum will usually show many eosinophiles as well as Curschmann spirals and Charcot-Leyden crystals.

Another determining factor in bronchial asthma is that most attacks can be quickly overcome by the subcutaneous injection of 0.25cc to 1.0cc of epinephrin (adrenalin). For such spells this drug is far superior to any other. It may be repeated as often as necessary and is not habit-forming. Ephedrin is not of much

use in severe spasms. It does help mild paroxysms and aids in prevention.

To prevent attacks of bronchial asthma the best treatment is the specific one of finding and eliminating the cause of the paroxysms; a searching history and the correct use of skin tests are the two main methods in this connection. If the cause cannot be completely eliminated and if it is important it should be combated by the process of desensitization. This is usually done by injecting small doses of an extract of the offending protein, then increasing the strength of the extract at regular intervals.

The above-mentioned treatment, from the allergic standpoint, has led to many very excellent results. In fact, so many individuals have been completely relieved of their asthma for many years that they may properly be called "cured." Unfortunately, there are many victims who are only temporarily relieved and a few who are not helped at all. On the whole, however, the majority of patients receive distinct benefit from proper allergic treatment. Non-specific measures help in some cases where specific ones have failed.

Time will not permit further discussion of the treatment of bronchial asthma. One very important point needs emphasis. Morphine, which is life-saving in cardiac asthma, should not be used in bronchial asthma. Epinephrin acts much more efficiently in bronchial asthma; morphine does not work as well, leads to a habit and, in many patients, it causes vomiting, itching of the skin and many other untoward results. If given with adrenalin or after adrenalin it may lead to the death of the patient.

The literature on bronchial asthma is very voluminous and it is suggested that reference be made to one of the several text-books on the subject, such as Asthma and Hay Fever in Theory and Practice[5,6,7]. In addition, the following articles may be consulted,[8,15].

Paroxysmal Dyspnea of Chronic Nephritis (Renal Asthma). As the attacks of paroxysmal dyspnea which occur in chronic nephritis are closely related to those of cardiac asthma we shall dismiss them briefly. The condition is not uncommon and constituted 19% of the 250 cases of Palmer and White.[2] There is a history of long-standing nephritis with its attendant symptoms and then the paroxysms occur and may recur a few times before death ensues. The prognosis is very poor. Physical findings are somewhat similar to those of cardiac asthma. In addition, uremia may supervene and there may be a uremic frost, Cheynes-Stokes respiration and a recent acute fibrinous pericarditis. The dyspnea is usually of a stertorous character and the breath foul. The urine usually shows albumin and casts and the blood an increased retention of nitrogenous constituents. The patient is in middle or old age. The treatment of rest, depletion and diet, with morphine perhaps, is usually of little avail.

Other Causes of Paroxysmal Dyspnea. It might be well here to briefly point out that certain other conditions may be confusing. Hysteria must be thought of but there is no real wheezing nor dyspnea and it should be distinguished quite easily.

Certain causes of inspiratory dyspnea must be considered at times; these are due to obstruction of the upper air passages. Laryngeal diphtheria and edema of the glottis, as from streptococcus sore throat, are not uncommon. Laryngeal tumors and foreign bodies in the larynx, trachea or primary bronchus may confuse. Sometimes a pharyngeal abscess or an aneurysm may cause dyspnea by pressure. In all of these, however, the dyspnea is inspiratory for the most part and is more or less constant. In laryngismus stridulus (ordinary croup) the suddenness of the attack may confuse but the age of the patient and the character of the breathing offer no difficulty. Wheezing is not present as it is in bronchial asthma and there are no other findings characteristic of allergy.

SUMMARY

1. Paroxysmal dyspnea is frequent and important as regards the diagnosis of its cause, treatment and prognosis. Cardiac asthma, bronchial asthma and chronic nephritis are the chief causes.

2. The treatment of cardiac asthma consists of rest and morphine; digitalis is only useful between attacks.

3. For the treatment of attacks of bronchial asthma epinephrin is the best drug; morphine should not be used. Between paroxysms complete skin tests should be done; causes of attacks should be removed wherever possible; desensitization should be carried out, where indicated.

4. The prognosis in cardiac asthma and in the dyspnea of nephritis is poor. Duration of life is short. The prognosis in bronchial asthma is usually excellent but it depends a good deal on whether proper treatment is instituted at an early period of life.

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DISCUSSION

Dr. George Parker, Peoria: The differential diagnosis between cardiac and bronchial asthma is difficult sometimes when one sees the patient in an attack for the first time and has had no opportunity for study of the case. The urgency for relief is so great that it must be met at once. The admirable description of the essayist should help us in differentiating the various types of paroxysmal dyspnea, and should also aid us in the administration of the proper remedy. After we have seen the patient in numerous attacks and have had an opportunity for study, the diagnosis is usually not difficult.

Although the exact mechanism of the attack in which cardiac asthma occurs is not clear, insufficiency of the left ventricle is the basis. Therefore, it is well to keep in mind the various conditions which bring about this weakness. These are hypertension, coronary disease, luetic heart disease and chronic nephritis, either singly or in combination.

The old terms renal asthma and uremic asthma are misleading and practically obsolete. Almost all varieties of renal disease are associated with hypertension and cardiac hypertrophy. True uremic dyspnea is an acidotic dyspnea and is accompanied by a lowering of the carbon dioxide tension of the blood.

It should not be forgotten in the discussion of differentiation of paroxysmal dyspnea that cardiac and bronchial asthma may coexist and here the therapeautic problem is a combined one.

In the treatment of severe cardiac asthma I have found venesection a valuable thing, with the use of morphine. Digitalis, rest and intravenous glucose 50 to 100 c.c. of a 50 per cent. solution daily may prolong life and add a measure of comfort to these patients.

It has been a pleasure to hear and discuss this excellent paper by Dr. Unger.

Dr. E. M. Stevenson, Bloomington: Dr. Unger's paper, "Paraxysmal Dyspnea," may be considered a plea to the medical profession for a more complete understanding of this notoriously distressing problem.

The success in management of the individual attack depends entirely upon our ability to differentiate between the causes of paroxysmal dyspnea which Dr. Unger has mentioned. Our ability to differentiate the causes of paroxysmal dyspnea also enriches our capacity to provide proper prognosis. Not only the patient but the members of the family who, in most instances are nearly as distressed at the sight of a loved one gasping for breath as is the patient, are entitled to a statement relative to the possible outcome. As Dr. Unger has pointed out the prognosis in the bronchial type is much better than is dyspnea of either cardiac or uremic origin. We not only protect the patient and the family in offering a statement as to the outcome in the individual attack, but we also enable the patient after the attack to protect himself, to a certain degree, against future episodes.

The essayist alludes several times to the use of morphine as a therapeutic agent in the control of the attack. In my opinion, it is a very worth while warning. In the cardiac patient it is a drug of choice, but in the bronchial patient, who is allergic and who many times is sensitive to opium, it is very apt to produce nauseau and vomiting, thereby aggravating the attack. It is possible to produce fatal termination by its indiscriminate use.

In the light of Dr. Unger's wide experience I should like to ask his opinion of the border line case, that is, the individual who presents both the bronchial and cardiac type of paroxysmal dyspnea. I should also like to ask the essayist what his experience has been in connection with the bronchial type associated with hypertensive heart disease.

Dr. A. B. Magnus, Chicago: In neuropsychiatric service one occasionally meets with cardiospasm, cases who have certain complications either secondary or independent of neurological or psychiatric findings. I am interested in how you treat them, because they are somewhat foreign to my work. In regard to bronchial

asthma, I thought much work had been done with fever therapy. I have been employing prolonged sleep therapy with barbiturates in cardiac spasm with success.

One often meets with the type of asthma called "functional" asthma. The speaker has only slightly referred to this. I would, therefore, ask Dr. Unger what procedure he follows in his therapy with the functional type of paroxysmal asthma?

Dr. R. B. Hemphill, Oak Park: I was very much interested in the statement Dr. Unger made about the high percentage of interns failing on the question about asthma. I think it behooves each of us who has anything to do with teaching the interns and undegraduates, in view of this unfortunate situation, to discuss this important question. Perhaps the first problem these young men will face when they get out will be a case of this condition in the middle of the night when he must make a decision and make it rapidly.

Dr. Leon Unger, Chicago (closing): I have not used hydrochloric acid intravenously in the treatment of bronchial asthma. I have had two patients who had this form of treatment elsewhere and had such poor results and such an aggravation of their symptoms as to discourage me. I have used it by mouth with no results.

Regarding Dr. Parker's statement about the obsolete use of the term "renal asthma" because there is no proof that renal asthma causes bronchospasm, I do not believe bronchospasm causes bronchial asthma. There are a few men who do believe that bronchospasm is caused by a reflex arc, but this has never been proved. Our theory, and I think it has been substantiated, is that bronchial asthma is due to plugging up of the bronchial tubes by sputum and to actual hypertrophy of the walls of the bronchi. It is true that bronchial asthma and cardiac asthma may coexist and this makes a difficult problem, but I am convinced that bronchial asthma patients live as long as any one else in spite of insurance statistics. Those statistics are published under the term of asthma alone and may include some with cardiac asthma. When I say bronchial asthma I mean the allergic form, and when I say cardiac asthma I mean that form due to cardiac disease.

I did some work a few years ago on the heart in bronchial asthma with electrocardiograms in 74 patients and we found that these patients had just as good electrocardiograms as the normal person with the possible exception that many showed a tendency toward a right ventricular preponderance.

In regard to the relationship of bronchial asthma and hypertension I think it is only incidental.

As to functional asthma, I do not believe such a thing exists. I believe there is a hysterical form. There are patients who breathe deeply who think they have asthma, but I tell them they do not have it. As to fever therapy, I personally have given it up. I tried it with eight patients and have abandoned the use of it entirely.

ORTHOPTIC TREATMENT OF STRABISMUS

A Further Report from the Records of the Illinois Eye and Ear Infirmary

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CHICAGO

Many of you who are here today may have heard my preliminary report on the orthoptic work of the Illinois Eye and Ear Infirmary at Springfield last year, or you may have read it in the ILLINOIS MEDICAL JOURNAL. My report today, after twenty months of clinical observation, embraces all the work done in this orthoptic clinic up to the present.

The organization of this clinic followed a very glowing report of the work accomplished at the orthoptic clinic of Northwestern University, the report having been presented by Dr. Guibor at the annual meeting of the American Medical Society in Milwaukee, June, 1933. Many ophthalmologists immediately became very enthusiastic, and some, over-enthusiastic. Although our orthoptic clinic had, as its immediate object, the treatment of strabismus, with the elimination of the deviating angle and the development of fusion, our ultimate object was the study and investigation of orthoptic treatment along the lines and principles suggested by Northwestern University. At the time that Dr. Guibor made his first report, he invited other orthoptic clinics to adopt similar methods in order to check his work, and my paper today includes a critical analysis of my results, as compared with those of Northwestern University.

I will not go into the history of orthoptic treatment. It is sufficient to say that this is not a new therapeutic measure in the history of strabismus. Non-operative measures were attempted as early as 1870. Among the earliest investigators, Javal and Remy stand foremost. Javal on the one hand, using a stereoscope only, condemned the treatment after several years of investigation. Remy, on the other hand, always remained a staunch believer in orthoptic treatment. From this early beginning up to the present time, there have been several cycles or waves of enthusiasm and condemnation of the treatment. The present wave of enthusiasm for orthoptic training in the treatment of strabismus

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 21, 1935, at Rockford.

may easily go the same path of oblivion as the others, unless guarded by conservatism and truth. Over-enthusiasm and charlatanism must be discouraged and guarded against.

In England and in this country, numerous clinics have been established for the study and investigation of this form of treatment. Some splendid work is being accomplished in these countries, using the English method. Besides these countries, however, no others are making any attempt at doing anything with orthoptics, with the exception of France which has one clinic in Paris where, under Cantonnet, some good work is being accomplished.

A short description of a number of instruments and appliances most useful in doing this work should, I think, be instructive.

The stereoscope and its many modifications were the earliest instruments used in the rebuilding of fusion, and the elimination of the deviating angle. The results, using this type of instrument only, always proved disappointing, and because of this the method fell into disfavor at various periods. Cantonnet in his book on strabismus says of Javal, "It must be remembered that he used almost entirely the stereoscope, an instrument which does not lend itself easily to the early stages in the orthoptic treatment of strabismus." It is sometimes very difficult to eliminate suppression with this instrument, and it cannot be adjusted to the patient's angle of deviation, an important step in the early stages of treatment.

Worth's amblyoscope, although a very crude instrument today, found favor and was useful for many years. It has now been almost superseded by some very excellent modifications known as the synoptophore, snyoptiscope, and orthoptoscope. These, as well as Worth's amblyoscope, are based on the mirror-reflecting principle. They have the advantage over all other instruments of being capable of adjustment to the patient's deviation. With these instruments every stage of fusion may be developed. Eyes with false fixation and false projection, and also those with the so-called false macula, may be stimulated so as to develop simultaneous macular perception with corresponding retinal areas. In my opinion, this type of instrument lends itself to more uses in orthoptic training than several others I can mention. No clinic and no office, where orthoptic work is conscientiously and honestly being attempted, should be without one or more of these instruments.

The Wottring normalizer or stabilizer, consisting of a moving disc and red light, is very useful in developing diplopia and overcoming suppression, with the aid of prisms producing diplopia in the vertical fields of vision.

Among the other instruments and appliances found useful in this form of treatment are Lloyd's campimeter, Wottring rotoscope, kinetic stereoscope, stereophorometer, Keystone telebinocular, cheiroscope, diploscope, myologic unit, prisms, slides, and cards of Wells, Sattler, Dvorine, Keystone, and Guibor. Various drawing sets designed to stimulate vision in amblyopia are also frequently used. Atropine and various occluding devices must not be overlooked. One must adopt many instruments, appliances and methods for the various problems always encountered in the efficient handling of strabismus, and in the work of re-educating squinters.

A brief resume of the accepted theories of the causes of strabismus is as follows:

1. Nervous Theory. This takes into consideration the possibilities of the presence, in a given case, of a hypertonus or hypotonus of the convergence center; but, in addition, this theory also takes into consideration the influence of errors of refraction.

2. Optical Theory. This theory is very complex; it is different for convergent and divergent squint.

Convergent Theory. In 1860, Donders advanced the theory that a hyperope, having to accommodate too much, also converges too much, and throws on one eye, the weaker if vision is unequal, the excess of convergence, in order that the eye with the better vision may continue to fix. The objection to this theory is that all hyperopes do not become convergent strabismics; there are hyperopes that are divergent. Myops and even emmetropes may develop convergent strabismus.

Divergent Theory. Donders believed myopia to be the fundamental cause of this type of squint. A person with myopia, not having to accommodate, has little tendency to converge. If he does converge at all, it is at the cost of a dissociation of convergence and accommodation which produces a fatigue of convergence, and ultimately a divergence. This theory takes into consideration a weakening of the converging muscles. The chief objection to this theory is that many myopes have good binocular vision.

3. Muscle Theory. This attempts to explain all cases by the congenital or acquired weakness of a muscle. In some cases this may apply. The objection to this theory is, however, that it cannot apply to alternating strabismus; and in recent cases no muscular lesion can be demonstrated.

4. Psychical Theory. Some authors believe squint to be the result of a mental clumsiness, similar to that

which is found in stammerers; that is, a lack of coordination of visual sensations. Recently Fink attempted to prove such an association by tracing the occurrence of stammering and right and left-handedness in sixty cases of squint. In my opinion, he failed to prove any definite connection.

5. From Binocular Vision to Strabismus. Cantonnet advances the theory that certain factors interfering with an individual's binocular vision tend to produce neutralization or suppression, followed by a deviation. Claude Worth was among the first ophthalmologists, many years ago, to recognize the presence of defective fusion in all cases of squint. He emphasized this fact in his book.

Orthoptic exercises aim to eliminate the angle of deviation and re-educate the fusion sense. If we succeed in getting a parallelism of the eyes or a reduction of the angle, but fail to develop fusion, there is always a possibility of the angle of deviation recurring.

An important question often asked, is "What is fusion?" The simplest answer to this is that fusion is the ability we have of seeing the same object with both eyes as one object. The different grades of fusion recognized are as follows: first, simultaneous macular perception; second, simple fusion; third, stereoscopic vision; and fourth, fusional amplitude. The following are some of the advantages of binocular vision: first, it acts as a regulator of the convergence function; second, it permits a better judgment of distances; third, it increases the brightness of objects seen; and fourth, it permits a perception of relief or stereoscopic vision. The eye which is used to see is called the fixing eye; the other is the squinting or deviating eye.

Among the numerous tests for binocular vision, and the various instruments and appliances used in its determination, are the following listed below:

1. Cantonnet test.
2. Remy separator.
3. Worth's four dot test.
4. Berens' spectacle test.
5. Red glass and Maddox rod.
6. Stereoscope.
7. Amblyoscope, synoptophore, and other modifications.
8. Diploscope.
9. Herring drop test.
10. Javal bar reading test.

Certain conditions usually present in any given case of strabismus are these: first, a deviation of the axes, either monocular or alternating; second, a defect of the fusion faculty; third, a suppression of the vision of the non-fixing eye, either complete or partial; fourth, an acquired amblyopia, occurring frequently, especially in unilateral squint; fifth, in rare instances, a congenital amblyopia; and sixth, a refractive error.

There are certain definite factors to be considered in the selection of a case for treatment. There are many contraindications. Certainly all cases are not suitable for re-education. In our clinic at the Illinois Eye and Ear Infirmary, following the lines advocated in the first report of the work at Northwestern University, no selection of cases was attempted. This, in my opinion, after twenty months of experience with the method, is a wrong procedure. Some of the factors to be considered are listed below:

1. Age. Some authors state that the younger the patient, the better the result. Chief among these advocates are Worth and Peters. I, too, feel that some treatment should be attempted early in cases of strabismus. Refraction, and measures toward eliminating any amblyopia present, should be instituted as early as possible; but in regard to fusion training, the age and cooperation of the patient and the methods employed should be taken into consideration. Using the English method, with the synoptophore, children may be treated at an earlier age than with any other device. Using the stereoscope, normalizer, diploscope, and many other instruments, good cooperation and the exercise of the will power is necessary. We cannot expect children much under seven or eight years to respond. However, Worth and Peters believe treatment should be instituted before the age of six or seven, the period in which fusion is developing. Maddox and Cantonnet, on the other hand, believe that frequently adolescents and young adults also develop fusion. In my own experience, I have had several cases in which fusion has been developed in patients ranging in age from nineteen to twenty-six, no fusion having been present before.

2. Degree of Deviation. If the angle of deviation is very large, a cure will be more difficult than in cases of a lesser deviation. The most favorable cases are those having an angle of less than 25 degrees. Certainly no case having an angle of over 35 degrees should have any attempts made for a correction with treatment only.

3. Visual Acuity. Low visual acuity in the presence of pathological lesions offers no possibility for improvement. These lesions may be in the cornea, lens, or retina. An accurate refraction under a cycloplegic must first be done. Deviated eyes with vision as low as 20/200 or less are not capable of re-education, but exercises and occlusion for the amblyopia often improve the acuity so that the prognosis of the case may change. It is generally considered that the acuity of the deviated eye must be at least 20/65, or in rare cases 20/100, in order to expect any success. Those patients having a so-called false macula with false fixation and false

projection are not good material for re-education unless this defect is first corrected.

4. Excursions of the Eyes. Cicatricial retraction of the ocular muscles in squint is rare before adult life. This must be investigated, however, by measuring the inward and outward rotation of each eye separately. In the presence of a tendonous retraction re-education is impossible. Paralysis and paresis must both be ruled out.

5. Degree of Suppression (Neutralization). If it is possible to elicit diplopia readily the case should prove very favorable. If the suppression is very tenacious and difficult to overcome, the results will be more difficult to obtain.

From the foregoing it can be easily seen that all cases of squint are not favorable material for treatment, but on the contrary should be carefully selected. Two other factors influencing the results, but not mentioned above, are the attendance of the patient and the psychical conditions present. Regular attendance must be insisted upon, treatments being given daily, or at least three times weekly. The psychical conditions must be favorable, the patients showing an average intelligence and exercising sufficient will to master the problems. Patients of low mentality and those who do not cooperate are not favorable cases.

In the following I will now give you a brief outline of our Routine Management of Strabismus:

1. History. This should be taken on the first visit and should be very complete, including the following:
   - A. Complaints. Headache, diplopia, eye weakness, etc., should be noted.
   - B. Family History. The presence of squint in any member of the various branches of the family should be inquired into.
   - C. Patient's Personal History. The birth—normal, abnormal, or premature—the mental development, the school record, and the right or left-handed tendencies should be ascertained.
   - D. Patient's Medical History. The previous illnesses or injuries and any speech or hearing defects must be noted.
   - E. History of Squint. The mode of onset—occasional, periodic, or constant—the age of onset, the parent's theory of the cause, and the progress of the case, if any, should all be recorded.
   - F. Previous Treatment. It should be asked if the patient has had glasses and if so, how long they have been worn. It should also be noted if drops were used in the examination. If any occlusion or atropine was ever prescribed for an eye, any treatments or exercises of any kind given, or any operation performed, the facts should be duly recorded, the dates and types of operation being noted also.
2. Examination. This is accomplished in two steps.
   - A. Objective.
     1. Diagnosis (Character of squint). This may be either convergent or divergent, unilateral or alternating, concomitant or paralytic.
     2. Angle of Deviation and Angle of Kappa (Gamma). This is measured with and without glasses for distance and near, the muscle light being at 20 feet for distance and at 33 centimeters for near. The angles are taken with a special strabismometer developed in our clinic, and built for us by the American Optical Company. Other methods for measuring the deviation are as follows:
        - a. Duane's screen and parallex with prisms.
        - b. Maddox rod and prisms.
        - c. Priestly-Smith tape.
        - d. Deviometer of Worth.
        - e. Ordinary perimeter.
        - f. Stereo-campimeter, measuring displacement of blind spot.
        - g. After image method.
        - h. Double image method.
     3. Power of Central Fixation. The kind of fixation—good, fair, or absent—is noted for each eye separately and eccentric or false fixation recorded.
     4. Motility. The excursions of each eye outwards and inwards are measured separately. These measurements are also taken with my special strabismometer.
     5. Near Point of Convergence.
   - B. Subjective.
     1. Vision. This is taken with and without glasses.
     2. Fusion Ability. This is done to determine the presence or absence of fusion (the degree if present), the presence or absence of simultaneous macular perception, the presence or absence of suppression and degree. Some of the tests are as follows:
        - a. Remy Separator. This is used to determine simultaneous macular perception.
        - b. Berens' spectacle Test. This is used to determine single binocular vision.
        - c. Worth's four dot Test. This is used to determine binocular vision or diplopia.
        - d. Amblyoscope. This is used for all grades.
        - e. Stereoscope. This is also used for all grades.
        - f. Synoptophore. This too is for all grades.
3. Treatment. This is divided into active and non-active.
   - A. Non-active.
     1. Refraction. This is done under a cycloplegic immediately after the examination has been completed, if the patient has never worn glasses before. If glasses have been recently fitted by a competent ophthalmologist with a good result, no new refraction is done until indicated.

2. Prisms. These are used in lenses by decentration or slip-overs.
3. Ambloyopia. If this is present, it is treated with atropine in the fixing eye, or occlusion of the fixing eye, either complete or partial, or with exercises, drawing, lights, et cetera.

B. Active.

1. Orthoptic Training. This is preceded by the proper measures for correcting amblyopia, if the latter is present.
2. Surgery. This phase of the treatment for strabismus is not being discussed in this paper, but I will say that where surgery does become necessary and is performed, those patients who have had orthoptic treatment before operation, and certainly those who have received postoperative orthoptics, always show a rapid development of fusion and are more certain to develop parallel eyes. Many patients have been sent to my clinic for treatment after operation, with varying amounts of either undercorrection or overcorrection, and with orthoptic treatment we have succeeded in developing fusion and eliminating the remaining angle.

Although, strictly speaking, orthoptic treatment means the development of single binocular vision and stereopsis, in actual practice we do more than this. Our objectives are to restore or preserve the vision in the squinting eye, to eliminate the suppression, to develop fusion, and to eliminate the deviation.

Visual acuity is restored or maintained by the measures adopted for the correction of the amblyopia present. Atropinization is not very popular in our clinic. If insisted upon, we frequently lose our patients. I feel that better results can be had with occlusion. In addition, our patients get treatment at the clinic on the Maddox cheiroscope and other drawing devices. The use of sight-saving books with large print for home reading will also prove very helpful, we believe.

We attempt to eliminate suppression with the Remy separator, Cantonnet's method of deneutralization in strong light, Wottring's normalizer and prisms, the amblyoscope or synoptophore, or the stereoscope and prisms. With these we produce a diplopia or, in other words, simultaneous macular perception.

The synoptophore is the instrument of preference for obtaining single binocular vision. In the absence of this, we may use the amblyoscope, normalizer, diploscope, or stereoscope.

Depth perception, ductions, and amplitude are developed with the same group of instruments, using prisms, slides, cards, or objectives prepared for these purposes. We recently introduced in our clinic a pin exercise which is especially productive of results in post-operative cases and also in the development of convergence

Office and clinic treatment should be given daily by a competent trained technician under one's own supervision. These should be private individual treatments, and not in groups. In our clinic we have several booths which we expect to utilize for individual treatments. Our experience with group treatments has been very unsatisfactory. If daily half-hour treatments are not possible, at least three a week should be insisted upon, these being augmented by home treatment if the patient and parents are intelligent enough to cooperate. Peters says that he does not feel that three sessions a week are sufficient to develop a well-balanced fusion. Certainly one a week can be expected to do even less.

Home treatments are usually very unsatisfactory. Cooperation is rare and instructions are seldom correctly followed. Home treatments consist of the use of the stereoscope, Remy separator, Cantonnet's deneutralization in a strong light, cards, prisms, drawing, light flashing, reading, etc. These treatments should be followed daily, or twice daily, for periods varying from fifteen to thirty minutes.

No patient is given actual orthoptic exercise until he has worn his glasses for at least six months. During that period we feel that any correction of the deviation due to the refractive error alone will have been accomplished. A certain number of squints will straighten out while wearing their correction, but will immediately resume their deviation upon removal of their glasses. In less than 1 per cent. of such cases have we found that fusion developed spontaneously.

Angles of deviation are measured about twice each month. Ductions are taken after the angle of deviation has been eliminated and fusion developed. Stereopsis is also measured at this same period, with an instrument developed by Dr. Martin Cohen of New York, and modified by Dr. Wells of Boston who has described it in his book. I further modified it, and in this form it is being used in our clinic. Other instruments used to measure stereopsis are the Howard and Jones apparatus and the three-needle apparatus described by Cantonnet.

My suggestions as to the management of the non-operative treatment of starbismus, offer a somewhat different technique than the one we have been using at our clinic up to now. The same principles are involved and the same problems are to be met, but our mode of procedure will now be entirely different. Whereas up to the present our clinic has followed the routine adopted by Northwestern clinic, with all steps of the treatment dependent upon the use of the stereoscope, our process now recognizes that certain definite problems are to be met and overcome in each step of the treatment, and that certain instruments are definitely more useful than others in these various steps. Although Dr. Guibor has frequently stressed the importance of the stereoscope and considers it of most value in orthoptic training, our experience forces us to differ from this opinion. Peter, Wilkenson, Wells. and others also felt that the stereoscope has only a limited use in orthoptics and that one should recognize its limitations.

Angles must be taken frequently and carefully, as angles carelessly measured often lead to misinformation. Squints considered cured must have a complete elimination of their deviating angle. At a recent meeting of the Chicago Ophthalmological Society, Dr. Guibor presented a paper pertaining to this subject, and was asked, during the discussion, to define a cured squint in regard to the angle. His reply was that all patients showing an angle up to five degrees are considered among his cured cases. This five degree angle, added to the five plus angle of Kappa or Gamma present in nearly all squints, would give remaining angles of deviation up to ten degrees. Such cases should not be considered cured. At our clinic only cases showing a zero angle, or between zero and five out, are considered cured cases. This angle of five degrees out corresponds to the angle of Kappa.

A study of our treated cases offers some interesting data. Since the opening of the clinic we have had about four hundred patients. These include not only concomitant squints, but also heterophorias, amblyopes, and paralytic squints. For statistical purposes, in our report today, I am using the records of 183 consecutive patients, only. The others have been omitted because of too short, too irregular, or too recent attendance. Neither phorias nor paralytic squints have been included in these statistics.

Of the 183 patients under consideration, 110 were given orthoptic treatment (twenty of these were later operated on); 44 were observation cases, glasses having been recently prescribed; 4 were purely amblyopes; and 25 were post-operative, having received orthoptic treatment only after operation. Included with the treated cases we had three patients who entered our clinic with the angle absent with and without glasses. These patients had done nothing except to wear their glasses for a number of years. With orthoptics we were able to develop third-grade fusion in all three, none having any fusion before treatment.

At this point I would like to report a very interesting case not included in our squint cases. The patient, six years of age, appeared at our clinic with a unilateral convergent squint of 15 degrees due to a complete paralysis of the external rectus. No fusion was present. We operated on this patient, doing a transplant of the inner half of the superior and inferior recti muscles, attaching them to the external rectus muscle above and below, respectively. Six weeks later we did a partial tenotomy of the internal rectus. Now, one year later, this patient has no squint, is capable of rotating the eye outward for 22 degrees, and has developed all grades of fusion.

In the 107 treated cases, the angles of which, before treatment, varied from 5 to 20 degrees (in one case the angle was 25 degrees), the percentage of results is as follows:

17 cases or 16% have straight eyes without glasses
49 cases or 46% showed improvement of more than 10°
37 cases or 34% showed no improvement
4 cases or 4% were amblyopes

The cases with straight eyes with and without glasses we have found to be thirty-one in number, or 30 per cent.

If I were to do as the Northwestern clinic did and include all patients with angles up to 5 degrees, I would show the following results:

33 cases or 30% have straight eyes without glasses
42 cases or 40% have straight eyes with glasses

In spite of including these doubtful cases among the cured, I still do not show the high percentages reported by Northwestern. They reported complete correction of the squint in 50 per cent. of the cases, with glasses, and 42.1 per cent, without glasses. I will attempt to explain this variation in results.

First, however, I want to say a few words about the results reported in my paper last year.

I then listed thirty-four treated cases with ten of these, or 29 per cent. showing the angle eliminated. None of these cured cases had started with an angle greater than 20 degrees. The results the first year were somewhat better than this year, but I will attempt to explain this later. At this point it will be interesting to note, though, that of these ten cured cases of last year, seven in a recent examination were still straight; two were straight with glasses but showed a slight angle without; and one showed a small angle with and without glasses. None of these cases had received any further treatment.

An analysis of our treatment in postoperative cases also speaks well for orthoptics. Of the forty-five cases operated on twenty had had orthoptic training previous to operation. Of these twenty, fifteen are now straight without glasses and five are straight with glasses. Of the other twenty-five cases, which had received post-operative orthoptics only, two are straight without glasses; five are straight with glasses; and, of the rest, some show improvement and others no improvement.

A study of the fusion development in the cases operated on is also interesting. Of the twenty cases which had had preoperative orthoptics, only two had shown any evidence of first-degree fusion previous to operation. After operation we were able to develop third-degree fusion in fourteen and first-degree in six. Of the twenty-five cases having only postoperative treatment, only seven showed any evidence of first-degree fusion in the beginning. We developed third-degree fusion in ten, first-degree in thirteen, and none in two. From this we see that preoperative treatment does something to the eyes which enables them to develop fusion more readily than those which have had treatment after operation only. But treatment after operation is certainly of immense value not only in developing fusion but in stabilizing the eyes and completing a cure when some under-correction or over-correction has resulted.

Of the forty-four cases under observation, eight of these, or 18 per cent., were straight with glasses in less than six months. Only five of these patients, however, showed any tendency to fuse, and then only in the first stage. It impresses me very forcibly when I note how seldom fusion develops spontaneously in patients who have been operated on or in those who have developed straight eyes by wearing glasses.

In trying to explain the reason for the difference between my results and those of Northwestern, I have considered many possibilities. Our results last year were better than this year but still they were not as good as those of Dr. Guibor. I explained this then by the fact that, due to the recent organization of our clinic and the short period of operation, we had comparatively few patients, and those patients were receiving practically private instruction from the technicians I had trained in the routine adopted. Although our cases had not been selected, we were fortunate in having some very favorable material. However, I might say that, even with these circumstances in our favor, we were already beginning to feel the lack of proper equipment.

The reasons for the poor results this year are many. From about sixty patients the first year, the clinic grew to over four hundred. Still making no selection of cases for orthoptic treatment we tried to care for all of these. Our clinic has grown to such proportions that we have finally found it necessary to give treatment every afternoon, and three mornings a week, instead of only two afternoons as in the beginning. However, the patients still receive only one treatment a week in the form of group treatment.

And so we have finally concluded that several factors not conducive to good results are these: first, crowded, weekly, group treatments; second, no selection of cases; and third, the continued use of the stereoscope, which is so poorly adapted to squint of high degrees. These factors certainly indicate plainly enough where part of our fault lies.

CONCLUSIONS

1. Orthoptic treatment of squint is not a new therapeutic measure. All that we investigators can do is to perfect our methods and improve on instrumentation and equipment.

2. The organization of our clinic, among other aims, had as its object the checking of the method adopted at the Northwestern University Orthoptic Clinic.

3. In England and in this country, numerous clinics, properly equipped, are doing splendid work.

4. Proper equipment is essential. Reliance

on any one instrument is a fallacy. The stereoscope especially has been proved inadequate.

5. Weekly treatments in groups have proved a failure. Daily treatment is the ideal procedure. If advisable, home treatments may be included for certain special problems.

6. Cases must be carefully selected if one expects good results.

7. A certain definite routine must be developed and the treatment carefully followed step by step. A careful history and examination, with frequent checking of visions, angles, and fusion is essential.

8. Trained technicians must be available to give actual instruction and treatments. Careful medical supervision must be available at all times. In doing this work, one must exercise patience and perseverance.

9. This treatment, administered before operation and certainly after operation, assures us of much better results, both as to parallelism and fusion, than operation alone.

10. Orthoptic treatment is certainly a very valuable therapeutic aid in the management of strabismus. One should not be discouraged too easily because another's methods are not entirely satisfactory and, therefore, condemn the entire treatment. With the proper instruments, a good working routine, and the knowledge of how and when to meet and correct certain conditions occurring in squints in the course of treatment, one is certain to accomplish much with these patients.

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DISCUSSION

Dr. Leo. L. Mayer, Chicago: Dr. Bressler has given us a concise, analytical and unbiased survey gleaned from a wealth of knowledge and experience with the question of orthoptics, which few in the field of ophthalmology may hope to attain. It has been my unusual good fortune to have become interested in this subject in the incipiency of its present reclamation from the past, and in addition, through my connection with both Northwestern University and the Illinois Eye and Ear Infirmary, I have had an opportunity to criticize the methods at both institutions. Since Dr. Bressler's paper is dedicated to the comparison of his results obtained at the Infirmary with those recorded by Dr. Guibor at Northwestern, it seems fitting and pertinent to dwell on this phase of the subject. I certainly must agree that every case of strabismus does not lend itself to re-education by orthoptic methods. However, if one considers the analogy of the patient with headache who comes to us for the consideration of whether glasses are needed, it will readily be realized that not until there is a period of trial may one be sure of whether one patient or another is to receive benefit. To be precise, it is my feeling that after the period of one month during which the oculist has been patient and thorough, the parents have been entirely co-operative, and that patient has been completely in accord—yes, after thirty days trial—a competent orthoptic trainer may be entirely sure whether an individual patient is suitable. Obviously, during this period the ophthalmologist would have sufficient time and facts to answer the contra-indicatory factors which Dr. Bressler has outlined.

Dr. Bressler's technic of routine has been given to you most completely, and yet, as in all medical procedures, after you have heard, read and studied these methods, it will be necessary that you practice on clinical cases and perhaps take a post-graduate course in order to know the details of each procedure before you begin to make progress in the orthoptic care of squint cases. You will recall that such were the conditions in learning the art of refracting, and certainly the physiology and physics of orthoptics is as complicated as, if not more so than that of refraction.

Dr. Bressler has learned much from his unique experience. His differences with Dr. Guibor as to angle measurements, etc., seem to be one of both a qualitative as well as quantitative nature, and because of these, it appears that an explanation of their differences in recorded results is to be found. In addition, as has been said, the facilities at the Infirmary are not entirely conducive to good results.

There is one final point to which I should like to call your attention, which is not stressed in the essayist's report. All authorities report their results in detail on those cases which were helped. But what of those cast aside as showing no improvement? Remember that to begin with, fully 50 per cent. of strabismic patients are not amenable to orthoptic training because of factors which to us at the present time are a long way from being entirely clear. Why should not every undiseased amblyopic eye under proper care enhance in visual acuity to normal? What is fusion, anyway? When these questions are answered our percentage of cures with orthoptic treatment will rise perceptibly. It is to men like Dr. Bressler and to others who are open-minded concerning orthoptic training that we shall look for further knowledge on this subject.

Dr. Louis Bothman, Chicago: I would like to ask Dr. Bressler a question. He states that his results from training of patients who were operated on, who had

had training before operation, were better than on those trained only postoperatively. Is there any difference in the degree of squint? In other words, did these patients have a higher degree of squint and for that reason come to operation sooner? If this is true we can understand why the results were not so good.

Dr. Sanford Gifford, Chicago: I am sorry that Dr. Guibor could not be here to discuss this paper. I think we are all to be congratulated on hearing this report. It is not surprising that the figures from two different clinics should differ considerably. It is important to remember the difference in results obtained in the high and low degrees of squint—the results one will obtain will depend largely on the number of cases of higher and lower degrees included in a series. At Northwestern we took unselected cases, and took them all. There were a rather large number of low degrees of squint. I think the interesting thing in Dr. Guibor's figures was the classification of squint above and below 15 degrees. In those above 15 degrees he obtained only about 16 per cent. good results; in those below 15 degrees he obtained about 80 per cent. of what we considered straight eyes. As to the difference between 5 degrees and zero—it did not seem that we could measure two or three degrees, and it seemed to be so little that when a patient had straight eyes on cover test he was considered to be straight. I should like to know how many of Dr. Bressler's cases were of low and high degree.

Dr. Guibor has another report which will be read to the Committee of the American Medical Association, in which he has attempted to classify cases in such a way as to give a guide as to the method of treatment and the prognosis, and although there is not a large number of cases in this group the results of the classification of squint are interesting. Of course, as Dr. Bressler says, cases of amblyopia in which vision is less than 20/100 or 20/70 are ruled out, as are organic defects of the retina. We can determine a muscle defect at the start. Those cases have a poor prognosis. The good cases are the so-called accommodative squint cases associated with hyperopia in which the angle of deviation becomes less with atropine. These have a good prognosis and in some cases they become straight even without orthoptic training. We had a control group and the ones that became straight were of that type. So if these figures are broken down it will give a different picture.

Our office results are always worse than those in the clinic. It is hard to get patients to come to the office often enough to accomplish anything without undergoing the suspicion of elevating this thing into a racket. In the clinic we feel free to have the patients come three times a week. With our office cases we try to get along with home treatment, which, as Dr. Bressler said, is unsatisfactory. In England the training of technicians is done in a regular course of orthoptic training. In London there are a number of licensed orthoptic technicians, who have been licensed after a course of about a year. They are connected with certain clinics, or run private clinics to which the doctors send patients. I have been afraid to train technicians in our clinic, but if something were done here on the same basis as it is done in England, it might solve the problem. One reason for Dr. Guibor's results, I think, was the fact that his cases were handled by himself.

Dr. M. L. Folk, Chicago: I think Dr. Bressler should be congratulated on his paper. It is the first really sane paper I have heard on this subject, and he has given us conservative figures. In the first papers published they told us that fusion training once a week was enough. I said at the time that I could not see any chance for improvement of squint by that method. Dr. Bressler, however, treats his cases three times a week. Also, in the first papers it was said that 35 or 40 degrees of deviation could be corrected, but Dr. Bressler's report mentions only small degrees of deviation. I think this problem is now being treated in a more logical way, and I believe we will get more conclusive results as we go along.

Dr. Carl Apple, Chicago: I would like to ask a question pertaining to improvement of vision in amblyopic eyes by covering the other eye, in patients over six years of age.

Dr. Catharine Chapman, Chicago: I agree that everyone should be given a trial at fusion before they are operated on, and sometimes that should be quite brief, because it may lead to mental confusion in the patient. I have in mind a 23-year old patient who had alternating squint and was able to get fusion of colors but when fusion of objects was attempted, after making the image fall on the macula with pressure, she tried to fuse the image off at an angle equivalent to her angle of deviation. After operation that image, which was extramacular, gradually faded because that line of vision was straightened, and later on fusion training was useful. At first she was much confused and saw two images with each eye.

Dr. W. H. Elmer, Rockford: I would like to ask if there is any indication for excluding cases on account of age. In one case the use of the vertical prism technic resulted in ability to fuse even at the age of 56. I would also like to know if he notes any improvement in central acuity by the use of this method.

Dr. J. L. Bressler (closing): In answer to Dr. Bothman's question, who wants to know if some of the cases did better after operation who had orthoptic training previously than those who had postoperative training only, and the angle present. If you recall, I reported on 107 treated cases and mentioned that twenty of these later went to operation. There will be more of these 107 cases going to operation, but these twenty have been operated on for two reasons. We could develop first stage of fusion in some only and could get no appreciable reduction in the angle. Most cases operated on after orthoptic training had been attempted had an angle of 30 degrees or more. Those who came to me after operation came to me from other services where I had no control of the case. No angle had been recorded and this was unknown to me. But I should judge that in these cases most angles must have been between 30 and 35 degrees, but I know that those I operated on were over 30 degrees.

Dr. Gifford mentioned that the angle could not be measured when it was low. I do not know why. I developed an instrument at the Eye and Ear Infirmary and with this it is possible to measure angles accurately to 1 degree. If properly done I think the angle can be checked as accurately on this strabismometer as you can by the screen and prism method. Dr. Gifford also asked how many low degree and high degree I had. I did not go into that phase. I did not want to include a lot of statistics, but I know that all the cases cured had 20 degrees or less, except one who had 25 degrees. I am sorry Dr. Gifford did not say anything about group training. I found no improvement with this, nor is the stereoscope adapted to treatment when the angle is greater than 25 degrees. I think training by a technician is the only way it should be done. They should be trained for this purpose and the entire training should be given into the hands of the technician, but medical supervision must be constant; every step must be dictated by the physician and not by the technician himself. There is a technician in New York who was trained in England and at the present time she is doing part time work in the hospital and a part time private office of her own. There is a clinic in Tennessee where the ophthalmologists send their patients without having any supervison over the patient whatever. The patients pay a minimum fee to the optical house which supports the clinic, of which the physician gets nothing.

Dr. Apple asked whether we get any improvement in amblyopia under 6 years. Sometimes yes, sometimes no. It is difficult to distinguish between congenital amblyopia and amblyopic exanopsia. It is higher in degree than congenital, but in those not congenital we have developed improvement varying from 20/200 to 20/25.

Dr. Elmer asked about exclusion of certain ages. Some orthoptists prefer to train them early, some late. Dr. Cantannet will not accept a patient over 35 years of age. We have in my clinic some patients who have had squint and have developed fusion at the age of 26, 24 and 19.

THE HEPATIC LESION IN THYROTOXICOSIS

J. M. Mora, M. D.

CHICAGO

Within the past few years, considerable attention has been focused on the interesting interrelationship between the liver and the thyroid gland, particularly as it concerns thyrotoxicosis. Study of the literature and appraisal of recent work permits four avenues of approach to the problem:

1. Clinical Data—especially as they concern icterus.
2. Studies of hepatic function.
3. Hepatic changes in experimental hyperthyroidism.
4. Actual structural changes in the liver in this disease.

Presented before Section on Surgery, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 22, 1935.

The occurrence of icterus in thyrotoxicosis has been known for many years and has recently been noted with increasing frequency. Beginning with Habershon in 1874, numerous references are found to cases of icterus by Eger, Sutcliff, Eder, and Sattler, to mention but a few. Some described the liver as being of a "bright yellow color, anemic, and in no way nutmegged." In others, the parenchyma was described as being "saffron-yellow." These observations occurred with sufficient frequency to permit their inclusion in more complete descriptions of the disease. Thus Boothby wrote of "the tendency to gastrointestinal crises of nausea, vomiting, and diarrhea, with jaundice as a frequent terminal condition in cases of long duration." He states further:

"Jaundice is not an infrequent accompaniment of the late stage of long continued, gastrointestinal thyroid crises and is distinctly a dangerous sign. In most instances it sems to be an integral part of the syndrome and due directly to the thyroid intoxication. In all probability it is only rarely due directly to cholelithiasis or an independent biliary infection, although such conditions, if present, may be lighted up and rendered acute."

A similar statement may be found in Crotti's monograph. Heilmeyer, among 101 cases of thyrotoxicosis in his clinic, found 6 patients with icterus not explainable upon any other basis. In 8 of Weller's 35 cases there was some reference to jaundice varying from slight to marked, and in 23 out of 107 cases from the Mayo clinic reported by Beaver and Pemberton, icterus was observed.

Of particular interest are those patients in whom evidences of a degenerative hepatitis are so marked as to lead to a diagnosis of acute yellow atrophy. Such a case was reported by Kerr and Rusk in 1922. Their patient was a 39 year old man who had presented typical thyrotoxic symptoms for a number of months. Failing appetite, nausea and vomiting were followed by increasing icterus, extreme weakness, cardiac palpitation, diminished liver dullness, bile pigment in the urine, coma and death. Tyrosin and leucin were not found in the urine. Similarly, Raab and Terplan described the clinical course of a 29 year old woman, who showed jaundice relatively early in the course of exophthalmic

goiter. Uncontrollable vomiting developed with auricular fibrillation, coma and death. These two cases differ only in degree from those characterized by icterus less marked. This conception of a continuous series of parenchymatous changes of varying severity is of importance in understanding the lesions found in the liver of these patients (Weller).

Studies in Hepatic Function: The functional activity of the liver in clinical thyrotoxicosis has repeatedly been the subject of investigation. Certain of these studies were inspired by clinical observation of impaired function in such patients, made manifest usually by icterus, as previously described.

Hirose, in 1912, reviewed the literature showing that the threshold of galactose utilization without galactosureia is lowered by hepatic cirrhosis and catarrhal jaundice. He found in addition that in patients with exophthalmic goiter he obtained his highest values for alimentary galactosuria. Strauss also discussed the occurrence of glycosuria in exophthalmic goiter and the low threshold of tolerance to galactose in patients with morbus Basedowii.

In 1922, Sanger and Hein compared the blood sugar curves of normal persons with those suffering from thyrotoxicosis. They confirmed the occurrence of abnormal curves in the latter group and concluded that

"the increased utilization of carbohydrate after carbohydrate ingestion, along with the maintained high blood sugar points to an inability to store glucose—most probably a failure of liver storage, due to some toxic change in the liver caused by the disease. This fits in with the results found in thyroid-fed animals and is suggested by clinical cases of hyperthyroidism in which carbohydrate restriction is attempted."

One of the largest series of cases studied from the standpoint of liver function tests was that recorded by Youmans and Warfield in 1926. They studied 44 patients with thyrotoxicosis and the tests used included test of retention (according to the Rosenthal technic), levulose tolerance studies, Widal's hemoclastic crisis test, the icterus index, and glucose tolerance studies. Fifty per cent. of the entire series showed impairment of liver function according to the tests used. Kugelman (1930) on the basis of his own work concluded that the thyrotoxic liver not only suffers severely as a depot for stored glycogen but also has lost the capacity to transform large amounts of levulose to dextrose and to store it. Thus the functional disturbance is concerned with an intermediary phase of carbohydrate metabolism. So constant are the changes in carbohydrate metabolism in this disease as evidenced by a discharge of glycogen from the liver that Willis and I made this reaction the basis of a biological test, using the liver of the white mouse. We found that by injecting the serum of thyrotoxic patients subcutaneously and intraperitoneally into white mice we could render the liver free from glycogen. This work was subsequently confirmed by Himmelberger, who modified the technic of the mouse test and showed that the urine as well as the serum of patients with hyperthyroidism contained a substance capable of disturbing liver function. Other evidence of disturbed function may be quoted. Heilmeyer found the urobilin quotient (urine urobilin/stool urobilin) to be elevated in half of the cases he studied. As tested by the method of Von Bergman and Eilbott, the biliruben-eliminating power of the liver was impaired in each of a group of five cases studied. Lichtman recently noted a disturbance in the oxidation of cinchophen demonstrable in 16 of 20 cases of uncomplicated hyperthyroidism.

Evidence of Hepatic Dysfunction in Experimental Hyperthyroidism: A large proportion of the studies in this field have dealt with the various phases of carbohydrate metabolism. Cramer and Krause showed in 1913, that when small amounts of fresh thyroid gland were administered for 2-3 days to rats or cats who had been on a high carbohydrate diet, the livers were found to contain only traces of glycogen. This effect they found to be due to an inhibition of the glycogenic function of the liver and not to an increased utilization of carbohydrates. Parhon, Kuriyama, and Fukui all found diminished hepatic glycogen in experimental hyperthyroidism. More recently, the suggestion of Buell, Strauss, and Andrus, that the function of the liver in synthesizing glycogen from lactic acid may be impaired in the hyperthyroid individual has been supported by experimental evidence. These investigators found that there was much less glycogen deposition, resulting from lactic acid absorption, in the livers of the thyroxinized than in the normal animals. With pure thyroxin (and also with liver extract), Reinwein and Singer demonstrated an increased use of oxygen by living liver cells when these substances were

applied to them in concentrations of 10^{-8} to 10^{-11}.

Under prolonged thyroid feeding other changes take place in the liver which quantitatively more than offset the loss of weight due to glycogen depletion. This was shown by Simonds and Brandes who rendered dogs thyrotoxic by feeding them large doses of thyroid substance for periods varying from 32 to 100 days. In these dogs the actual liver weight was in every instance greater than the theoretical liver weight as calculated for the final body weight. They suggested that increased functional activity and increased rate of blood flow might explain the failure of the livers of thyrotoxic animals to lose weight to the expected degree, resulting in a relative, if not an actual, hypertrophy. These findings were later substantiated by Hewitt and by Hoskins, who used white mice.

Structural Changes in the Liver have been noted for many years: Farrant stated that the livers of cats and rabbits fed thyroid substance showed fatty degeneration, most marked around the centers of the lobules. Hashimoto described parenchymatous degeneration of the liver cells about the efferent veins, varying from fatty degeneration to necrosis. Egar (in 1880) described a liver as being atrophic, with saffron-yellow parenchyma, and microscopically exhibited lipoidosis with only a few areas of intact liver cells. Other observers described cases resembling atrophic cirrhosis. Marine and Lenhart stated that in a significant number of long standing cases (of exophthalmic goiter) coming to autopsy cirrhosis of the liver was observed. In the gross, such livers are reduced in volume, sometimes smooth, sometimes slightly granular and again distinctly hobnailed. The extent of the connective tissue increase varies from slight thickening of the portal spaces to well marked fibrous bands. The liver cells usually exhibit some degree of fatty metamorphosis.

The most critical of recent work is that of Weller, who studied very carefully a large series of cases and who called attention to what is apparently a characteristic lesion in the liver in thyrotoxicosis. Much of his work was subsequently substantiated by Beaver and Pemberton.

Two types of hepatic change have been observed, the acute and chonic. The acute changes are characterized by fatty lesions and central or focal necrosis. Such lesions occurred in all but 9 of the 107 cases (91.5%) reported by Beaver and Pemberton. It is difficult to fix the exact role of these acute changes because of their frequent occurrence in a variety of conditions other than thyrotoxicosis; on the other hand it is impossible completely to ignore them in the face of such a high percentage of association. Furthermore, experimental evidence confirms their importance, and they undoubtedly play an important role in the pathogenesis of the chronic lesion to be described presently.

The fatty changes were the usual ones seen in fatty metamorphosis of the liver. They usually occupied the central lobular region, although in some instances the periphery was involved.

Actual necrosis, either focal or central, has appeared microscopically so frequently that according to Beaver and Pemberton it seemed to represent an accentuation of the same toxic reactions which usually resulted in fatty changes sometimes progressing to necrosis.

Microscopic examinations of the necrotic areas show hyaline thrombosis of the lobular sinusoids, with necrosis of hepatic cells and collections of polynuclear leucocytes. In some instances the necrosis seems to appear without these changes, in which instances one finds various degrees of nuclear degeneration or complete nuclear lysis with destruction of the hepatic cells in the region of the central vein.

The chronic lesion is the one which has aroused widespread interest and has been designated by Weller as a *chronic patchy parenchymatous interlobular hepatitis.* The milder changes consist of slight enlargement of the islands of Glisson (portal canals) with lymphocytic infiltration. In more marked cases there is notable increase in the connective tissue which enlarges the islands so that the liver lobules tend to be encircled by this tissue and isolated one from the other as in atrophic cirrhosis. From the latter, the lesion being described differs in being irregularly distributed throughout the substance of the liver, many islands escaping entirely, and also showing less bile duct proliferation in the increased stroma. It is suggested that the extensive patchy fibrosis so frequently encountered, having small groups of liver cells scattered through it as in some cases of advanced hepatic cirrhosis, may represent regions in which necrosis was previously present.

SUMMARY

Hepatic changes appear to be an integral part

of the syndrome of thyrotoxicosis. This can be demonstrated clinically by the occurrence of icterus; physiologically, by the increasing evidence of altered hepatic function, experimentally, by the evidence of hepatic dysfunction following administration of thyroid substance and thyroxin; and morphologically by structural changes in the liver, varying in the acute stages from widespread degenerative, fatty and necrotizing processes to the chronic lesion in which the changes are interlobular, irregularly distributed, involving the peripheral portions of the lobule and showing relatively more fibrosis and lymphocytic infiltration than bile duct proliferation. To this lesion the term chronic patchy parenchymatous interlobular hepatitis has been applied.

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DISCUSSION

Dr. Arnold Jackson, Madison, Wis.: Dr. Mora has given a very interestig presentation of a phase of thyroid disease seldom brought to the attention of the profession. I hesitated about discussing his paper since I knew so little about this subject, but after glancing over the literature it seemed that any contribution might help further our knowledge of this rather unexplored field.

For sixteen years I have been particularly interested in diseases of the thyroid, yet in my experience hepatic lesions have seldom been a factor of clinical importance in exophthalmic goiter.

No mention was made by Dr. Mora, nor does the literature contain any report of liver lesions complicating hyperthyroidism in adenomatous goiter. I do not recall ever having observed jaundice even in the terminal stages of toxic adenomata. If jaundice, as occasionally seen in advanced cases of exophthalmic goiter, was the result of a hepatitis, one might expect the same to be true in the thyrotoxicosis of adenomatous goiter. Because in the late stages of this disease there is both clinical and pathological evidence of changes in the cardiorenalvascular system, one might also expect hepatic lesions to occur.

The fact that jaundice is seen in exophthalmic goiter of long duration leads one to conjecture that in this disease alone there is some specific agent attacking the liver cells.

The finding of pathological evidence of hepatitis in such cases does not, however, necessarily prove that the liver lesion is the result of hyperthyroidism.

As Dr. Mora says, Weller found in studying the liver in 48 selected cases of exophthalmic goiter that 54% showed evidence of well-marked hepatitis, while a control series showed only one case. However, hepatitis is commonly associated with other diseases. MacCarty and I found that in 81% of the cases of chronic cholecystitis there was also evidence of hepatitis.

There is another point that offers opportunity for argument. Dr. Mora pointed out that in hyperthyroidism the liver is supposed to be glycogen-poor. Is this the result of hepatic lesions, the liver being unable to store sugar in the normal manner? Or, is it not more likely that the heightened body metabolism so stimulates the demands of the tissues for glucose that there is no chance for its being stored in the liver?

To return to the question of jaundice, which has been frequently mentioned as an indication that liver involvement does occur in thyrotoxicosis. In my experience jaundice has been an uncommon sequelae even in fatal cases of Graves' disease, and has only been observed in ten instances. Four occurred in the prelugol era and all in seriously ill patients suffering from prolonged hyperthyroidism. Only six of the ten survived. So far as indicating involvement of the liver in exophthalmic goiter, jaundice, because it is so sedom seen, is not a factor of practical importance. Its presence does, however, suggest a serious prognosis.

The possible factor of cardiac insufficiency affecting the liver might be suggested, but Ossman felt that this condition might be considered apart from hyperthyroidism, because the changes are not those resulting from chronic passive congestion.

Clinical observations do not necessarily support the contention that liver involvement occurs in hyperthyroidism. Pathological studies at the autopsy table, however, have long indicated that this assumption is probably correct. Accumulated scientific and laboratory data lend additional support to this idea, but further proof is essential before we can accept this contention as a fact.

From a clinical standpoint I do not believe that liver involvement is an important factor in most cases of exophthalmic goiter. If the patient does not survive thyroidectomy the cause may usually be explained on the basis of surgical error, or hyperthyroidism resulting from too brief or too prolonged iodine therapy. Death occurring after toxic adenoma is not so easily accounted for. In fact, barring those that result from some mistake on the part of the surgeon, or those due to cardiac failure, no one is able to explain or prevent some mortalities. Cerebral involvement is suggested by twitching of the extremities and nervous irritability which is soon followed by drowsiness, coma and death. In some diseases and in certain conditions as water intoxication there is a definite relationship between disturbances in the liver and in the brain. It may be that some deaths occurring after thyroidectomy for toxic adenoma are a result of hepatic lesions and subsequent cerebral involvement.

I should like to compliment Dr. Mora for leaving the beaten path and presenting a phase of thyroid disease that offers an opportunity for real conjecture and discussion. I wish to thank the committee for the opportunity of listening to and the privilege of discussing this interesting presentation.

With your permission I will present sildes of three cases of advanced exophthalmic goiter in whish jaundice occurred, and two of toxic adenomata seriously ill but with no evidence of jaundice.

Dr. J. M. Mora, Chicago (closing): I do not think we ought to leave the impresion that it is very easy

to pick out cases in which the liver is involved. Those of us interested in thyroid work have been seeking the answers to many questions. It is difficult to study the liver, to which so many things happen. When we speak of liver function tests we know we are stepping on dangerous ground. There is no one test that will give us all the information on what is going on in the liver. It is true that jaundice is not a very frequent occurrence in cases of thyrotoxicosis, but there must be some change that goes on, because in so many of these cases that come to autopsy there are many microscopic lesions which do not occur in cardiovascular cases. Men like Beaver and Pemberton have noted that the changes that are found in the thyrotoxic patient are in the periphery of the liver lobule, while in patients who die of some other condition they are usually found in the center of the lobule. We are also interested in finding out what happens in thyroid crisis. It may perhaps be due to some liver damage.

SIGNIFICANCE OF ELECTROCARDIOGRAPHY IN CHILDREN

Matthew M. Lewison, M. D.
CHICAGO

Electrocardiography, although used extensively in the diagnosis of cardiac conditions in adults, is a procedure very little resorted to in the diagnosis of heart disease in children. Because so much emphasis has been placed in the current literature on the diagnosis of coronary and degenerative or sclerotic heart disease by means of the electrocardiograph, one forgets to realize that it can also be used in inflammatory and conductive disturbances and affections of the heart, which are the more common cardiac disorders encountered in childhood and infancy. Of course the taking of electrocardiographs in children is not to be advocated as a substitute for the clinical methods of study of heart disease, but to be used in a confirmatory manner. The electrocardiograph gives valuable information concerning the condition of the heart muscle and also of the conductive system. It tells where the origin of the cardiac impulse takes place and also as to the manner in which the impulse is transmitted to the auricles and ventricles, all of which information cannot be obtained by purely clinical methods.[1] Electrocardiography in children has its limitations such as the difficulties encountered in having an infant stay quiet; the making of electrodes in the right shape and size to fit on small extremities, etc. Also, not enough work has yet been done to establish the standard form and time intervals of the graphs in normal children. It is known, however, that the auriculoventricular conduction time, or P-R interval is shorter in children than in adults and that all of the deflections, especially the T wave, are of a greater amplitude than in adults.[2]

The heart conditions occurring in children in which the electrocardiograph can be used as an aid in diagnosis are, first; acute rheumatic fever with heart involvement; second, arrythmias; third, congenital heart lesions; and fourth, post infectious myocardial diseases such as occur following diphtheria, scarlet fever, etc. In discussing the use of the electrocardiograph in rheumatic infections, it is best to divide the heart lesions into: those occurring during an active attack; and those present during a quiescent period, as a result of some previous infection.

As has been pointed out repeatedly in the current literature, the heart is involved in a very high percentage of cases of active rheumatic fever. Cohn and Swift examined 37 cases of acute rheumatic fever and found the heart affected in 35 of these cases.[3] Pomerance and Frucht examined 31 cases and found 28 cases with a prolonged P.R interval signifying heart damage.[4] This cardiac involvement is supposed to be a pancarditis with the infection extending to all three layers of the heart, namely; the pericardium; endocardium; and myocardium. Where the valves are involved, one can usually diagnose the condition clinically, and where the pericardium is involved, one can also make a clinical diagnosis, but as a rule the pericardial inflammation is so mild and of such a transitory nature, that it frequently requires an experienced cardiologist to discern its presence. In the case of myocarditis, however, the electrocardiograph is the chief weapon in the detection of any pathology present. The presence of the signs of myocardial damage with the characteristic changes in the electrocardiograph are so constant during an attack of acute rheumatic fever, that Master and Jaffe have been able to differentiate this condition from active rheumatoid arthritis in adults by means of the electrocardiograph.[5] According to Swift and Cohn the electrocardiographic changes during an attack of acute rheumatic fever are: first, a prolongation of the P.R interval; second, a widening of the QRS complex; and third, irregularities of the cardiac rhythm.[6] The presence of a prolonged P-R interval on the

Read before Section on Pediatrics, Eighty-fifth Annual Meeting, Rockford, May 21, 1935.

electrocardiogram indicates an early heart block and although this prolongation may be due to a variety of infections it is most commonly found in rheumatic heart disease. Pomerance and Frucht reported a case of acute rheumatic fever with a complete heart block in which an accelerated ventricular rate was present, making it impossible to make a clinical diagnosis.[7] Because an early heart block cannot be discovered clinically, the electrocardiograph makes it possible to determine its presence and thus prognosticate as to how long a patient with acute rheumatic fever should stay in bed. The presence of electrocardiographic findings does not always correspond to the temperature and may be present when the child is entirely afebrile. When electrocardiographic findings are present, the child should be made to stay in bed for a long time in spite of the absence of temperature and clinical findings. On the other hand the patient may run a febrile course and still no electrocardiographic findings be present, in which case he should also be made to stay in bed until afebrile. The presence of signs of myocardial involvement are of such a transitory nature, that one should take repeated electrocardiographs to find them. The degree of heart block in acute rheumatic fever may vary from just a slight prolongation of the auriculoventricular conduction time to a complete dissociation of the auricles and ventricles, but it is in the cases where only the early heart block is present with no clinical findings that the electrocardiograph plays such an important rôle.

The changes in the QRS complex during an attack of acute rheumatic fever are chiefly in the S-T interval, where either a high or low take-off of the T wave may be present.[8] Slurring or notching of the QRS complex, widening of the QRS complex, and inversion of the T wave, other signs of myocardial disease may also be present. The cardiac irregularities most commonly present in acute rheumatic infection are premature auricular contractions and extraventricular systoles.

In cases of rheumatic heart disease in children during the quiescent stage, the electrocardiographic findings are of not such great importance as in the acute stages. However, here also the presence of signs of myocardial degeneration such as lengthening of the P-R interval, slurring of the QRS complex, inversion of the T wave and axis deviations, aids the doctor in determining how to treat the patient and also to prognosticate as to the future life of the patient. In these cases the electrocardiograph acts as a confirmatory measure of the clinical observation of valvular conditions, rather than actually aiding in the diagnosis. Thus, in mitral stenosis, the electrocardiograph will show a right axis deviation with a notched or enlarged P wave, whereas in aortic valvular lesions, a left axis deviation with no enlargement of the P wave is obtained. Because the wall of the chest of a child is so thin, the heart tones and murmurs are transmitted loudly in auscultation, resulting in the less important murmurs such as the Austin Flint murmur in aortic regurgitation and the Graham Steele murmur in mitral stenosis being transmitted more loudly than the more important murmurs. Also hemic murmurs are very prominent in children. In these cases the electrocardiograph will show the true state of affairs in the heart. However, in cases of children with milder degrees of rheumatic heart involvement, the electrocardiograph may show no changes at all. In a series of cases of patients with old rheumatic heart disease which I examined at one time, I found that those showing marked myocardial changes, never did improve clinically while others with less marked changes, did.

In cases of congenital heart disease, the electrocardiograph gives confirmatory evidence of the presence of the lesion. In congenital heart block where a rapid rate sometimes masks the diagnosis, the electrocardiogram clinches the diagnosis. The electrocardiogram in cases of situs inversus or dextrocardia, is as diagnostic as the x-ray. As a rule the congenital lesions, except for a patent foramen ovale, are beyond the right ventricle so that one usually gets a marked right axis deviation on the graph. I recall a case of little infant with cyanosis and a marked systolic murmur heard over the entire precordium in which the diagnosis of congenital heart disease was made and in which the electrocardiagram showed no abnormal findings. The child subsequently improved and the murmur disappeared showing that the pathology was not as serious as could be predicted from the clinical findings. The electrocardiograph does not, however, give any aid in the diagnosis of the kind of a congenital heart lesion that may be present.

Whereas clinically only 70% of the cardiac arrhythmias can be diagnosed, the electrocardiograph will make the correct diagnosis in 100% of the cases.[9] Sinus arrhythmia is very common in children and is sometimes present to such a marked degree, or accompanied by so many extra systoles that it can be confused with auricular fibrillation clinically. The electrocardiogram in these cases will always cear up the situation. From the standpoint of prognosis, this is important because sinus arrhythmia and extra systoles in an infant do not indicate serious cardiac damage. In auricular fibrillation one should always take an electrocardiogram as a confirmation of the clinical diagnosis. The most common serious disorder in childhood, however, is heart block either partial or complete. This may result from a rheumatic or diphtheritic infection, but most often rheumatic, and occasionally when accompanied by alternate extra systoles it is due to an over-dosage of digitalis. Thus in digitalizing a patient electrocardiograms should be taken during the course of the treatment so that one knows when the saturation point has been reached. The electrocardiogram demonstrates heart block from the earliest stages where a slight prolongation of the auriculoventricular time is present to the last stages where one gets a complete auriculoventricular dissociation. Just as in adults, the electrocardiogram will diagnose all of the arrhythmias occurring in chidren. The advantage of making the correct diagnosis of an arrhythmia in children over that in adults, is that in the former they are in the process of being produced, while in the latter they are the result of an infection present some time ago.[10]

In diphtheria we have both the severe fatty degeneration of the myocardium and also the milder inflammatory type in which one gets an interstitial myocarditis. It is in the milder types of involvement, where physical examination yields insufficient evidence of the degree of cardiac damage present, that the electrocardiogram will sometimes show signs of myocardial degeneration such as notching or widening of the QRS complex and inversion of the T wave and thus aid one in determining how long a patient with diphtheria should be restricted to bed. Nathanson states that if an inversion of the T wave is found during convalescence from diphtheria, the patient should be required to stay in bed until there is a restoration of the normal upright T wave.[11] This method may fail, however, and in some cases death may ensue even when a normal electrocardiogram is obtained.

There are reports in modern literature of electrocardiographic studies made in other infections such as pneumonia,[12] scarlet fever, etc., but as yet nothing of importance has been found, except that the heart is involved during the course of the disease. The electrocardiogram has also been used to confirm the diagnosis of pericardial effusion in which case, one gets a low voltage picture with low amplitude of all of the defections.

Concluding, I wish to state that an attempt has been made in this paper to show the place of electrocardiography in children and the conditions where it may be applied. Since the most commonly met with heart conditions in children are the result of rheumatic infection, a great deal of space has been devoted to that subject. I have attempted to show that the electrocardiograph plays its most important role in the control of children afflicted with active rheumatic heart disease where the conducting system of the heart is involved and where an early heart block cannot be diagnosed clinically. The electrocardiograph also has its place in the diagnosis of the various arhythmias in children and in the confirmation of the diagnosis of valvular conditions such as mitral stenosis, etc.

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DISCUSSION

Dr. H. William Elghammer, Chicago: Electrocardiography is a timely and important subject in pediatric practice. I have read Dr. Lewison's paper and enjoyed it very much. He has presented the subject clearly and has covered the literature very well.

There is a great need for further research work to establish normal electrocardiographic findings and standards in healthy children.

My own experience with electrocardiograms has been mostly in cardiac pathology due to rheumatic infection. Clinically, we have come to recognize the systemic nature of this disease and have attempted to make early diagnosis of cardiac involvement. We have often verified this with the findings of definitely prolonged P-R intervals. Single cardiograms may be misleading. Only when abnormal graphs are found repeatedly and correspond with clinical findings do they have diagnostic importance.

In chronic valvular disease the electrocardiograms are of less diagnostic value. We often obtain normal graphs. In cases of combined mitral and aortic lesions, many times no ventricular predominance is evidenced in graphs. This most likely is due to the balance between right and left ventricular hypertrophy. Early pathological changes of the mitral valve most likely cause stenosis. This is shown by right axis deviation and changes in the P wave long before mitral stenosis can be detected by physical examination.

The anatomical-pathological condition of the myocardium is well demonstrated by electrocardiography; in fact, this is often the only method which will show myocardial damage. This is particularly true when the rheumatic granulomae are situated close to or in conduction fibers. It is rather surprising the disproportion that exists between myocardial damage as evidenced by electrocardiogram and the prognosis as to decompensation and cardiac failure. The acute reactivation of the rheumatic lesions, associated with marked perifocal reactions, determines the prognosis. This, I believe, can be best demonstrated by clinical examination, general impressions of the patient and by erythrocyte sedimentation rate.

I feel that electrocardiography is of great value in the early stages of rheumatic infection and during the acute stages of contagious diseases in childhood. In the study of cardiac diseases in children this method is a valuable adjunct to our usual clinical methods of examination. Cardiography is an open field for further research and I am sure will bring us much valuable information in the future.

Dr. G. F. Weinfeld, Ravinia: This subject is an extremely interesting and important one. After all, the major issue in dealing with children with rheumatic fever is the determination of the presence of any activity of that infection. Any clinical measures which would reveal the presence of such infection would be a very valuable aid. It has been pointed out particularly in adults, as Dr. Lewison mentioned, that a large majority of individuals with active rheumatic infection show very definite electrocardiographic changes. Shookoff, Weiss, Shapiro, and others have pointed out that these changes also occur in children during an acute rheumatic infection. I disagree with Dr. Lewison in that these electrocardiographic changes occur in children with the frequency and clarity which he implies to be the case.

At the University of Illinois for the past six years we have been interested in following children during the time of active infection and during the time of quiescence. Some of our children have been followed through a six-year period. Some have had as many as ten electrocardiograms during that six-year period. Much to our disappointment, the data we have received has been inconclusive and in most instances without diagnostic benefit. It is true that in sinoauricular heart block and auriculoventricular heart block the electrocardiogram has been of invaluable assistance. But in those cases in which we have been sure that definite activity is present, very few of them have shown the type of changes that Dr. Lewison pointed out. I would be interested in hearing what percentage of his cases have revealed these changes. We have sought particularly for prolongation of the P-R interval as an indication of active infection. A prolongation of more than .18 second was noted only once in a series of 41 children whom we have followed over a period of years with repeated electrocardiograms and clinical observations. I am not sure that one can definitely diagnose the presence of mitral stenosis by means of the electrocardiogram. We have had children who during the course of observation have not shown these changes, but who presented otherwise definite clinical evidence of this lesion. I believe, however, that the electrocardiogram may in many instances prove to be of great value as an adjunct in the study of children with acquired and congenital lesions.

Dr. Matthew M. Lewison, Chicago (closing): The subject of electrocardiography in children is of comparatively recent origin. The question of whether one gets a definite prolongation of the PR interval depends on whether the inflammation is near the conducting system or not. That is, you might have a rheumatic infection of the myocardium with no involvement of the conducting system in which case you would not get an involvement of the PR interval. In the cases I examined I found a prolongation of the PR interval in rheumatic infection, but the cases I examined I think were too late. Early in the disease is when one is supposed to get a prolongation of the PR interval. Perhaps I did not take enough repeated electrocardiograms. One should take them daily, but I did not get a chance to do so on these patients. The men who have reported the high percentage of cases in which one gets a PR interval prolonged in rheumatic fever are the men who have taken daily electrocardiograms. They say that one should take electrocardiograms daily in order to get the findings. The findings may be present one day and absent the next. The most important place where electrocardiograms can be of

use is early in the rheumatic involvement of the heart where no clinical findings are present. If you take the electrocardiogram and find an involvement, you have sufficient evidence to keep the patient in bed whether there is any temperature present or not.

Marriages

Thomas Bernard Carney, Kewanee, Ill., to Miss Katherine Mary Brugee of Chicago, June 29.

Joseph Greengard to Dr. Dorothy Hutchinson Welker, both of Chicago, July 17.

Allen Richard Morrison, Maywood, Ill., to Miss Evelyn Marie Herbst at Chicago Heights, July 6.

Personals

Dr. Grover C. Brown, Sainte Marie, has been appointed managing officer of the Jacksonville State Hospital.

Dr. Frederick H. Falls, Chicago, discussed "Early Diagnosis of Cancer of the Uterus" before the Coles-Cumberland Counties Medical Society, July 12.

Dr. Harold O. Jones was chosen president-elect of the Chicago Gynecological Society at the annual meeting, June 7, and Dr. Edward L. Cornell was installed as president.

Dr. Rolland L. Green, Peoria, president-elect of the Illinois State Medical Society, was guest of honor at the annual outing of the Peoria City Medical Society, June 27, at Luthy's Alps.

Dr. Margaret W. Gerard, assistant clinical professor of psychiatry, Division of Biological Sciences, University of Chicago, has been promoted to be associate professor under the psychiatry program recently instituted at the university.

The honorary degree of doctor of laws was conferred on Dr. Arthur Hale Curtis, professor of obstetrics and gynecology, Northwestern University Medical School, by the University of Wisconsin, June 24.

Thomas C. Grubb, Ph. D., has been appointed a member of the professional staff of the Illinois State Department of Health and will conduct research in the control and prevention of disease. Dr. Grubb is a graduate of the University of Chicago and in 1934 shared the Ricketts prize at the university for meritorious work relating to the diphtheria bacillus.

At the annual meeting of the Chicago Urological Society the following officers were elected: President, Ben E. Fillis; vice-president, William J. Baker; secretary-treasurer, C. Otis Ritch.

News Notes

—The state department of health announces an appropriation of $45,000 to extend for two years its work on trachoma among the indigent of the southern fourteen counties of Illinois, which has been in progress for more than a year under the supervision of Dr. Harry S. Gradle, Chicago. The state department of public welfare and the Illinois Society for the Prevention of Blindness are cooperating in the project, which includes the operation of out-patient clinics for treatment and preventive work.

—Medical examination of adults for heart impairment and tests to determine the skill of automobile drivers were offered free to all visitors to the state fair in Springfield, August 17-23, as special features of the exhibits on health and safety, according to the state health department. Each person who takes the test will receive a record showing his reaction time and folder indicating a safe speed for him, together with driving rules. The Sangamon County Medical Society is cooperating in the heart examinations, and Dr. John J. McShane, chief of the state division of communicable diseases, was in charge.

—About 600 cases have been studied to date in a survey of maternal mortality being conducted by the maternal welfare committee of the Chicago Gynecological Society. It is hoped to continue the study until data on about 1,000 cases have been accumulated. Sixty-eight physicians compose the committee, which represents the seventy-six hospitals in Chicago doing obstetric work. The executive committee has nine members, five appointed by the society, three elected from the membership and the president of the board of health; this committee outlines the policies and methods of procedure. All information is obtained by mail; in 1933 all but one case report blank was returned, and in 1934 all but twelve. Information for 1934 is still being received, however. The board of health supplies

the secretary with a copy of any death certificate in which pregnancy is mentioned. The secretary in turn mails a form to the hospital representative, who fills out the blank and returns it to the secretary. In case the woman dies at home, the form is mailed to the attending physician.

—Principle features of the recently revised minimum sanitary requirements of milk are announced by the state department of health as follows:

1. The short time-high temperature method of pasteurization is legalized. This method requires that milk be heated to not less than 160 F. and held at that temperature for not less than fifteen seconds.

2. Plans for contemplated pasteurization plants must be submitted to the state department of public health and plants must be approved and a certificate of approval issued before pasteurized milk can be legally sold or distributed.

3. Pasteurized milk must not be delivered to consumers in any container except that in which it left the pasteurization plant. This makes illegal the retailing of dipped milk bought in bulk from pasteurizing plants and sold as a pasteurized product. Hotels and restaurants that serve milk to customers are considered consumers under the law.

4. The state department of health is required to set up and enforce the minimum sanitary requirements for down-state pasteurization plans.

5. Representatives of the department are permitted to enter and inspect any pasteurization plant at any time.

The new standards eliminate the requirement of filtering milk prior to pasteurization and prohibit filtration through cloth or wire after pasteurization. They also require the heating of foam on milk in the pasteurizing vaults to pasteurization temperatures.

—Dr. Henri Coutard, chief of the department of roentgentherapy of cancer at the Curie Institute, University of Paris, France, will deliver the twelfth Lewis Linn McArthur lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago in the theater of the Chicago Woman's Club, 72 East Eleventh Street, at eight o'clock on Tuesday evening, October 1. The subject of his illustrated lecture will be "The Conception of Periodicity as a Possible Directing Factor in the Roentgentherapy of Cancer."

—Illinois will receive $425,000 from a federal appropriation of $3,450,000 for a public health survey in representative urban and rural communities under the Works Progress Administration. A house to house canvass will be made to determine the prevalence of chronic diseases and illnesses of long standing in samples of the general population of various income levels. Physical examinations of a smaller sample of the surveyed persons will be made by physicians to supplement available hospital records to evaluate the accuracy of the canvass reports. A survey of medical facilities will also be made, with especial reference to chronic diseases.

Deaths

Elmer Sherman Allen, Arcola, Ill.; Rush Medical College, Chicago, 1895; a Fellow A. M. A.; formerly mayor and president of the school board; aged 70; died, June 26, in the Memorial Hospital, Mattoon, of meningitis following an injury of the head in an automobile accident.

Frank Allport, Chicago Medical College, 1876; secretary, 1895-1896, and chairman, 1901-1902, of the Section on Ophthalmology of the American Medical Association; for several years chairman of the Committee on Conservation of Vision, and in 1903 member of the House of Delegates; practiced for many years in Minneapolis and in Chicago; formerly professor of clinical ophthalmology and otology, University of Minnesota Medical School, Minneapolis, and at his alma mater; past president of the Minnesota State Medical Association, the Chicago Ophthalmological Society and the Chicago Otological Society; fellow of the American College of Surgeons; at one time oculist and aurist to the board of education in Chicago; formerly on the staffs of the Wesley and St. Luke's hospitals, Chicago; served in the medical reserve corps; aged 78; died, August 3, in Nice, France, where he had been living for several years.

Alphonso Taft Arbuckle, Danville, Ill.; Rush Medical College, Chicago, 1886; aged 80; died, July 10, in the Lake View Hospital, of pneumonia.

Alphonse Leon Beardslee, Chicago; State University of Iowa College of Medicine, Iowa City, 1918; aged 41; died, May 5, of lobar pneumonia.

Lewis Munthe Berg, Chicago; Tulane University of Louisiana Medical Department, New Orleans, 1890; a Fellow A. M. A.; aged 79; died, July 31, of chronic myocarditis and arteriosclerosis.

Andrew J. Brislen, Chicago; Northwestern University Medical School, Chicago, 1895; a Fellow A. M. A.; at one time instructor in anatomy at his alma mater; on the staff of the Woodlawn Hospital; aged 61; died, July 23, in the Albert Merritt Billings Hospital, of cerebral thrombosis.

William L. Callaway, Chicago; Barnes Medical College, St. Louis, 1897; member of the Illinois State Medical Society; formerly professor of clinical medicine, Chicago College of Medicine and Surgery, Ben-

nett Medical College and Loyola University School of Medicine; on the staff of the West Side Hospital; aged 65; died, July 24, of angina pectoris.

Christus A. Derebey, Chicago; Northwestern University Medical School, Chicago, 1897; member of the Illinois State Medical Society; aged 78; on the staff of the Belmont Hospital, where he died, June 25, of chronic endocarditis and arteriosclerosis.

Ernest L. Dow, Rock Falls, Ill.; Rush Medical College, Chicago, 1887; aged 73; died, June 29, of heart disease.

I. Clark Gary, Chicago; Northwestern University Medical School, 1889; a Fellow A. M. A.; founder and superintendent of Peoples Hospital; aged 77; died, July 4, of coronary thrombosis.

Richard Franklin Hinman, Chicago; Bennett Medical College, Chicago, 1912; a Fellow A. M. A.; on the staffs of the Garfield Park Hospital and the Frances Willard Hospital; aged 60; died, July 20, of brain tumor and arteriosclerosis.

Edwin Raymond Le Count, professor of pathology in Rush Medical College since 1892, died in Chicago at the Presbyterian Hospital August 23 of coronary thrombosis. Dr. Le Count has born in Wisconsin, April 1, 1868. After graduation from Carroll College he attended Rush Medical College and received his M. D. degree in 1892. Thereafter he pursued graduate studies in Johns Hopkins Hospital in 1893 and 1894, in the Pasteur Institute in Paris in 1896 and in Berlin in 1905. He served at various times as attending pathologist in the Cook County, Presbyterian and St. Luke's hospitals and also at St. Elizabeth's and St. Anthony's hospitals. He was a member and once president of the American Association of Pathologists and Bacteriologists and was a president of the Association for Cancer Research. He was also a member of the American Association for the Advancement of Science and of the Society of American Bacteriologists. In the American Medical Association he served as a member of the House of Delegates in 1903 and as chairman of the Section on Pathology and Physiology from 1920 to 1921. He was the author of numerous contributions to the literature of his specialty, particularly on such subjects as the relative frequency of the various forms of coma, automobile injuries, skull fractures, air and fat embolism and blastomycosis. In his long service as pathologist to so many institutions he performed approximately 20,000 postmortem examinations. He was noted particularly for his training of young men in pathology, and many of the younger leaders in this field today were associated at various times with him. At the time of his death he had completed postmortem records extending over a period of twenty-five years, completely indexed and annotated, and presented these as a permanent contribution to the library of Rush Medical College.

George Leininger, Chicago; University of Wooster Medical Department, Cleveland, 1881; member of the Illinois State Medical Society; formerly superintendent of the Chicago State Hospital; aged 79; died, July 17, of carcinoma of the intestine.

Arthur Thomas Leipold, Moline, Ill.; State University of Iowa College of Medicine, 1907; a Fellow A. M. A.; vice-president Illinois State Medical Society, 1926-1927; former president of Rock Island County Medical Society; medical director of Rock Island County Tuberculosis Sanitarium; on staff of the Moline Public Hospital; director of Moline Tuberculosis Clinic; aged 50; died, July 4, of essential hypertension and nephritis.

John J. Lence, Jonesboro, Ill.; University of Louisville (Ky.) Medical Department, 1892; Missouri Medical College, St. Louis, 1893; for many years county coroner; aged 66; died, June 28, of cerebral hemorrhage.

John William Lewis, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1902; aged 61; died, May 22, of septicemia, which developed from a cut on the palm of his right hand.

William Sheriff Orth, Chicago; Rush Medical College, Chicago, 1890; a Fellow A. M. A.; formerly on the staffs of the Alexian Brothers' Hospital and the Grant Hospital; aged 70; died, July 16, in St. Luke's Hospital, of cardiovascular renal disease.

Otto L. Schmidt, an educator, a medical historian of considerable note, a sportsman, and a beloved family physician, died in Chicago, August 20, of carcinoma of the prostate with metastasis, aged 72. Dr. Schmidt was the son of a physician, Dr. E. S. Schmidt. He received his M. D. degree from the Chicago Medical College in 1883 and after postgraduate work abroad took up the practice of medicine in Chicago; a Fellow A. M. A. He was a consultant to the Alexian Brothers Hospital and a member of the staff of other Chicago institutions. From 1915 to 1919 he served as chairman of the Illinois Centennial Commission. He was a past president of the Institute of Medicine in Chicago, the Illinois Historical Society, the Illinois Historical Library and the Chicago Historical Society. He was also president of the Inland Lake Yachting Association. Dr. Schmidt served as a member of the Board of Education of the City of Chicago during the Dever administration and took a prominent part in maintaining the ideals of education during the attacks on Superintendent of Schools William McAndrew. He was decorated by the Austrian government in 1923 for postwar relief work. His two daughters are wives of physicians.

Charles Wilbur Seever, Sheldon, Ill.; Chicago College of Medicine and Surgery, 1909; served during the World War; aged 54; died, July 4, in the Garfield Park Hospital, Chicago, of cirrhosis of the liver.

Eugene Thompson, East St. Louis, Ill.; Missouri Medical College, St. Louis, 1890; member of the Illinois State Medical Society; served during the World War; aged 70; died, June 19, of cerebral hemorrhage.

Thomas W. Thompson, Xenia, Ill.; Rush Medical College, Chicago, 1884; aged 77; died, July 5, of cerebral hemorrhage.

Alfred Christoph Carl Wiebusch, Steeleville, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1906; member of the Illinois State Medical Society; past president of the Randolph County Medical Society; served during the World War; aged 54; died suddenly, June 24, of cerebral hemorrhage.

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—J. S. McLester: "Nutrition and Diet in Health and Disease."

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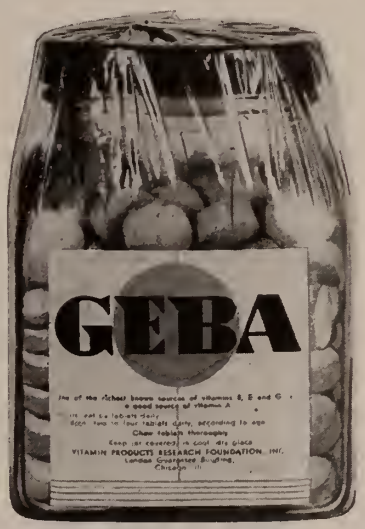
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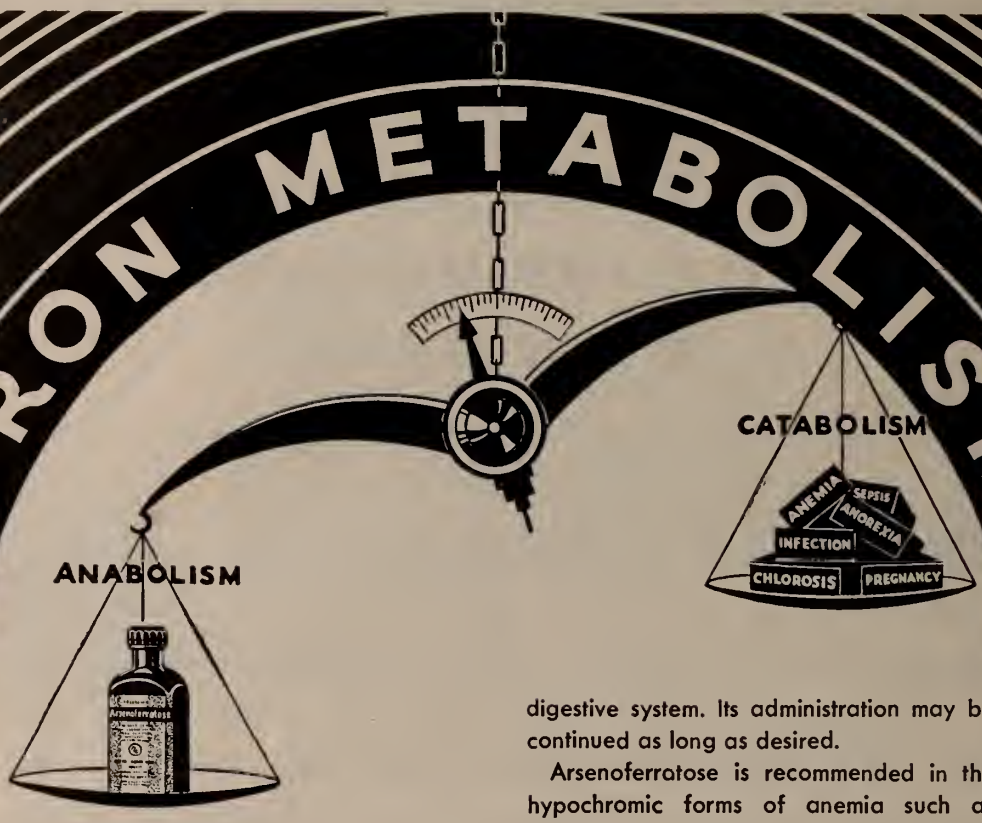
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2. Allergic eczema
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      (1) Infantile
      (2) Chronic in older children
   (b) Contact dermatitis.
3. Mycotic eczema*

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Book Review

A Treatise on Medical Jurisprudence. By Benton S. Oppenheimer, LL. B., Baltimore. William Wood & Company. 1935. Price $4.00.

This work is based on the author's long experience in the practice of law. The book will help all who are likely to be confronted with medical legal problems.

Human Pathology. By Howard T. Karsner, M. D., with an introduction by Simon Flexner, M. D. 18 illustrations in color and 443 black and white. Fourth edition revised. Philadelphia and London. J. B. Lippincott & Co. 1935. Price $10.00.

This work is intended as a text book and should receive wide recognition by teachers, students and practitioners.

The revision has been extensive and in many directions. The material on the general pathology of tumors, with minor exceptions, has been completely rewritten with the purpose of clarification. There has been many changes in the discussion of tumors of organs and system in systemic pathology.

Diseases of the Thyroid Gland. By Arthur E. Hertzler, M. D. Third Edition entirely rewritten. St. Louis. C. V. Mosby Company. 1935. Price $7.50.

This edition, like the preceding one is an expression of the author's experiences and impressions in dealing with affections of the thyroid gland.

Clinical Diagnosis by Laboratory Methods: By James Campbell Todd, Ph.B., M.D., Late Professor of Clinical Pathology, University of Colorado, School of Medicine; and Arthur Hawley Sanford, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation); Head of Section on Clinical Laboratories, Mayo Clinic. Eighth Edition, Thoroughly Revised. 792 pages with 370 illustrations 29 in colors. Philadelphia and London: W. B. Saunders' Company, 1935. Cloth, $6.00 net.

The first edition of this book was written twenty-five years ago. That it has gone through eight editions in rapid succession is sufficient recommendation. In this edition each chapter has been thoroughly revised and the work brought strictly up-to-date.

Diseases of the Liver, Gall Bladder, Ducts and Pancreas; Their Diagnosis and Treatment. By Samuel Weiss, M.D. With a chapter on Surgery by J. Prescott Grant. M.D. Chapter on Roentgenology by A. Judson Quimby, M.D. 358 illustrations and 6 colored plates. New York. 1935. Paul B. Hoeber, Inc. Price $.

This work embodies the author's experience in private practice, at the hospital and in the clinic. The work is intended primarily to be a practical one. Hence, the discussion of anatomy. embryology, histology and pathology is limited to the essentials. Physiology is discussed from the point of view of its clinical application in relation to the liver, gall bladder, bile ducts and pancreas.

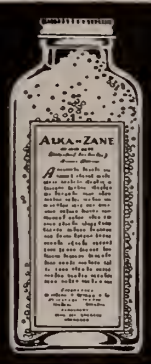
The Pneumonokonioses (Silicosis) Literature and Laws of 1934. By George G. Davis, M.D. Chicago, Illinois. Chicago Medical Press. 1935. Price.

This work contains international abstracts, extracts and reviews of the Pneumonokonioses and their associated diseases and subjects.

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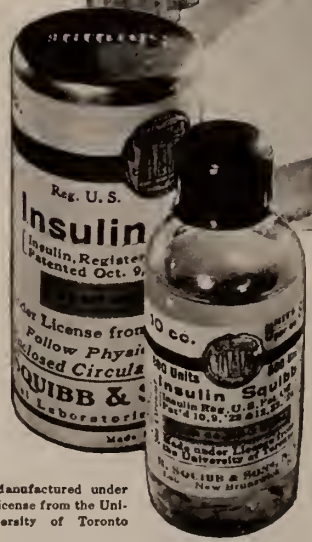
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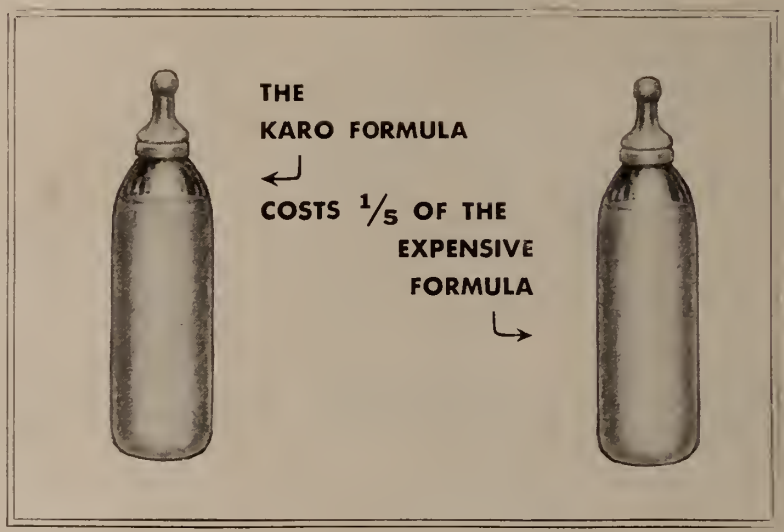
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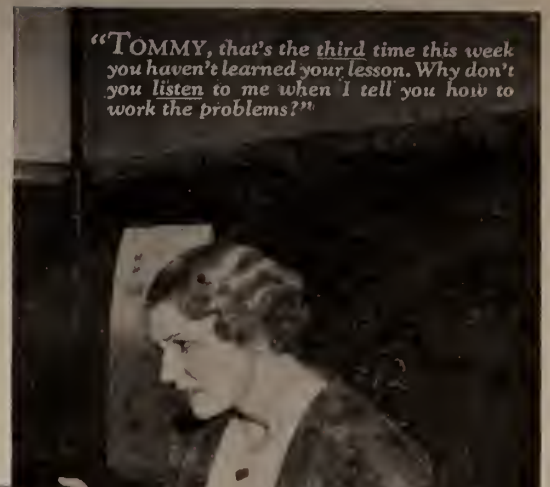
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And in other Spasmodic Coughs

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Cuts short the period of the illness, reduces the frequency of the attacks, relieves the distressing cough and gives the child rest and sleep.

Also valuable in BRONCHITIS and BRONCHIAL ASTHMA
(Relieves the cough in Pulmonary Tuberculosis)

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NOTE:—An interesting booklet on "Gold in the Treatment of Whooping Cough and Other Diseases" is just off the press and may be had on request. Drop us a card.

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"Umph," umphed Thunderbolt, "she got no pony!"

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Captive: "Newspaper man."

Cannibal Chief: "An editor?"

Captive: "No. Assistant editor."

Cannibal Chief: "Fine! After dinner I will promote you to 'Editor-in-Chief'!"

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TRITICOL is the original cold pressed wheat germ oil about which many Clinicians write us of their brilliant therapeutic accomplishments in—

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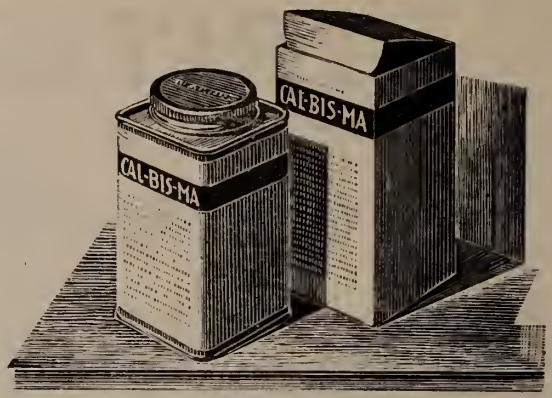
What vitamin A is to Xerophthalmia,
and vitamin B is to Beri-beri,
and vitamin C is to Scurvy,
and vitamin D is to Rickets,
and vitamin G is to Pellagra—
Vitamin E is to reproduction.

1. Jour. of Biological Chemistry, Vol. 104. No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

Doctors Suggest Administering Triticol in Milk — 3 to 5 Drops Per Glass

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INTESTINAL TOXEMIA *by* DETOXIFICATION . . . DENSENSITIZATION

Experimental and clinical evidence has led to the belief that the underlying factor in the typical picture of so-called "intestinal toxemia" is a hypersensitivity of the enteric tract to certain bacteria.

Unfortunately the many and varied therapies hitherto suggested —attempts to change the intestinal flora or sterilize the bowel—have frequently met with most discouraging results.

SORICIN CAPSULES



A more rational approach to the problem has been opened up by the discovery of the detoxifying properties of Sodium Ricinoleate—made available for clinical use under the name Soricin.

Soricin has demonstrated its capacity to inhibit bacterial proteolysis and to decrease toxic absorption from the bowel—in a word, to relieve the patient who is suffering from an intestinal allergy. According to published clinical work* patients given sodium ricinoleate (soricin) orally and no other treatment gradually lose their skin sensitivity to enteric organisms to which they had shown previous sensitization.

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Soricin is supplied in 5 grain and 10 grain enteric coated capsules. It is nontoxic, well tolerated, does not exert laxative effect. The usual initial dose is from 30 to 40 grains daily, reduced after 10 to 14 days to 20 grains daily, or according to indications.

Clinical sample and literature to physicians on request.

THE WM. S. MERRELL COMPANY
CINCINNATI . . . U. S. A.

*Morris, R. S., and Dorst, S. E.: Am. J. Med. Sci. 178:631-632 (1929).
Burger, G. N.: J. Lab. & Clin. Med. 19:234-243 (1933).

CANNED FOODS IN INFANT NUTRITION

I. Evaporated Milk

No phase of human nutrition has been more intensively studied than has that of infant nutrition. As a result of numerous investigations, much valuable information concerning the nutritive requirements of infancy has been accumulated. In addition, the quantitative nutritive demands of early life have been established within reasonable limits.

Along with advances in our knowledge of the science of nutrition have come changes in the older ideas concerning infant feeding. It is now an accepted fact that properly modified cow's milk can successfully supplement breast milk —in fact, where necessity or expediency demands, cow's milk properly modified and properly supplemented, can meet fully all nutritive requirements of infancy. As far as proper nutrition is concerned, the "bottled baby" of today starts on life's road with brighter prospects than did his fellow-being of a generation ago.

Evaporated milk is particularly well adapted to preparation of milk formulas for infant feeding. Numerous studies, laboratory and clinical, have demonstrated its nutritive values—ample practical medical experience has proven its worth in infant nutrition. From the wealth of available literature, we have selected the following concise summary which describes this canned food and outlines those characteristics by virtue of which it is held in such high esteem as an infant food (1).

(1) J. Amer. Med. Assn. 97, 1890 (1931)

1. Evaporated milk is pure fresh cow's milk with approximately 60 per cent of the water removed by evaporation under reduced pressure.

2. Evaporated milk is equal to pasteurized milk in all important food values; it supplies those vitamins which milk can be depended on to supply and in practically equal quantity.

3. Evaporated milk is sterile and therefore is the safest milk obtainable; it cannot introduce pathogenic micro-organisms to induce diarrhea in infants.

4. Evaporated milk casein curd in the stomach has a finer granular and softer texture or structure than that produced from raw or pasteurized milk; it resembles in physical structure the curd of human milk.

5. The fat of evaporated milk because of the homogenization processing is more finely dispersed than the fat of ordinary milk and therefore it is more readily acted on by digestive enzymes.

6. Evaporated milk is more speedily digested than raw or pasteurized milk or milk boiled only a very short time.

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8. Evaporated milk is one of the most convenient and economical forms of milk for preparing infant feeding formulas.

9. Evaporated milk enables introduction of more milk in the diet because it is concentrated.

10. Evaporated milk is considered by many pediatricians to be the best form of cow's milk for preparing the baby's formula.

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The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

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Larodon is supplied in slide boxes of 10 tablets, bottles of 100 tablets, and 1-oz. cartons of powder for extemporaneous prescriptions.

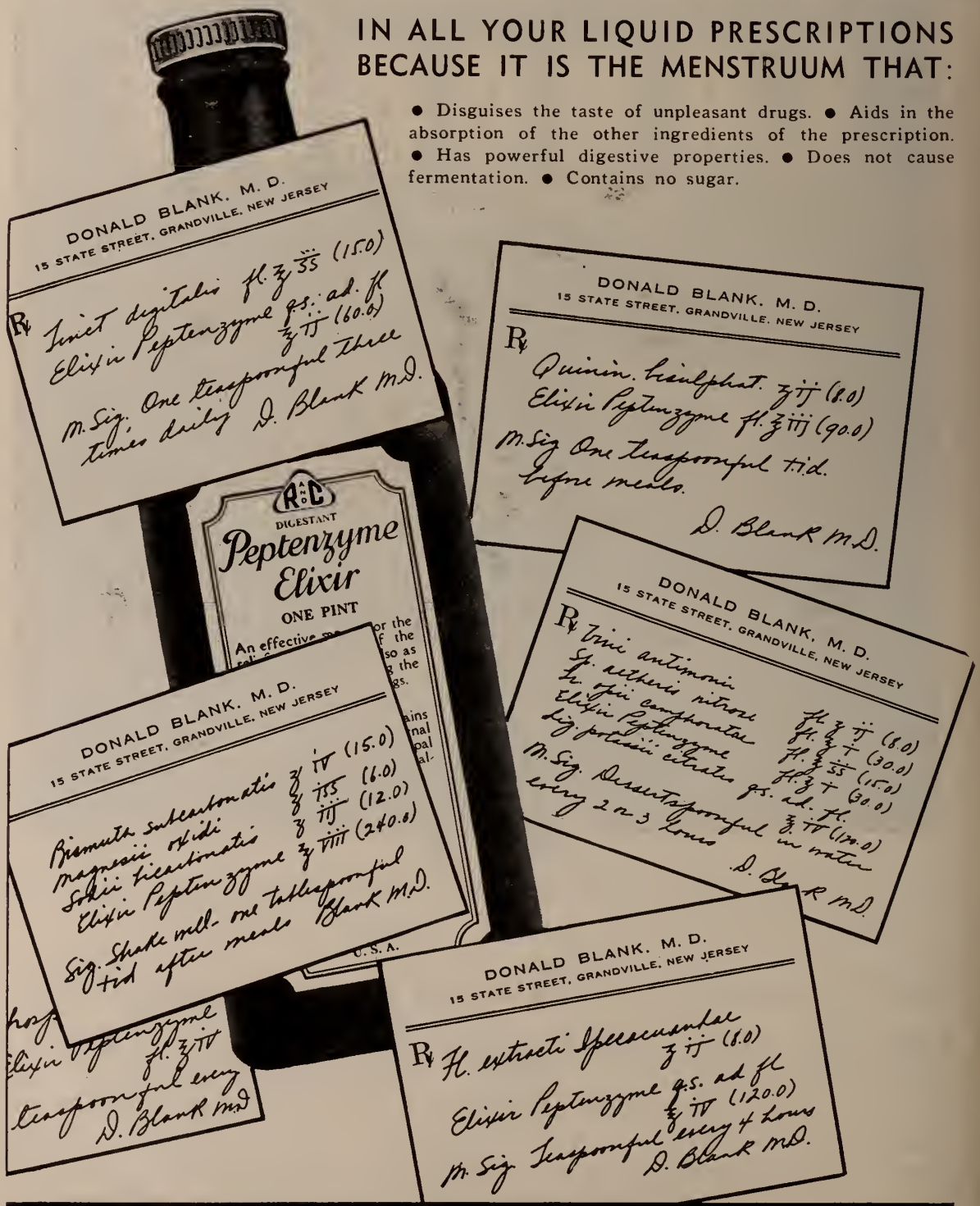
(Larodon is not known to your patients and is not advertised to the laity. Samples available to physicians.)

HOFFMANN-LA ROCHE, Inc., Nutley, New Jersey

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- Aids in the absorption of the other ingredients of the prescription.
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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 68 | OAK PARK, ILL., October, 1935 | No. 4

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Editorial

THE PASSING OF THE GOVERNMENT SOCIAL SECURITY ACT BRINGS US ONE STEP CLOSER TO THE MENACE OF LAY-DICTATED WASHINGTON DIRECTED MEDICINE

Finding the joker in the new "Social Security Act" is as easy as seeing the water in Lake Michigan. This new law is a horse-laugh on scientific medicine and American patriotism.

Tentacles of this octopodan law will entwine the medical profession more securely than has been managed by any other communistic traps or socialistic twiddle-dee-dees emanating from the patriotically-paralytic bureaucracy bossing the country with more emphasis than a by-gone Tammany Tweed did lower New York.

"Timeo Danaos, et dona ferentes"—or "I fear the Greeks even when bearing gifts," wrote Virgil in his Aeneid.

The advice has held through the centuries. And yet, even now many men of the medical profession may be dazzled into blindness by the announcement that under "S.S.A." comes an authorization for an annual appropriation of $8,000,000 to be allotted by the Surgeon General of the Public Health Service *with the approval of the Secretary of the Treasury, to states, counties, health districts and other political subdivisions to aid them in establishing and maintaining adequate public health services.* Please note the underlined phrases.

To this appropriation comes another $2,000,000 annually to cover the pay and perquisites of *"personnel of the Public Health Service detailed to co-operate with health authorities of any state and for the investigation of disease and problems of sanitation."*

Even the dullest economist discerns readily the fist of politics clutched in the cash-box of the appropriations, by this provision. Further the S.S.A. states expressly that the *personnel* of the Public Health Service *shall not be detailed* to co-operate with the health authorities of any

state *except at the express request of the proper authorities of the state.*

The reading gets better and better, for the communistic bureaucracy, as the eye flashes on. Let it be remembered that the actual dictation of the provisions of the Social Security Act are said to have come from the trustees of one of the nation's richest foundations to which gossip points the finger of accusation of being "Red." This is easy to believe.

Surely the scarlet stain far more than tinges that provision of the act where the nefariously non-patriotic Children's Bureau, sponsor of Sheppard-Towner and other bilge of like ilk, gets a chance to manipulate still another appropriation of about $7,000,000 which is appropriated to the Secretary of Labor under the mantle of "aiding mothers and children" in areas that are isolated geographically and impoverished economically. With a lot of ballyhoo and many polysyllables the outward intent of this is to help the stricken. It is safe to prophesy that when it comes to the working out of the provisions of the plan, the "stricken" who get the most aid will be those who profited the greatest through the maternity act appropriations . . . i. e. the *politically* "stricken" henchmen of big-politics who need jobs! Sheppard-Towner bought no diapers nor swaddling cloths for infants; nor sheets, nightgowns, fuel, shelter nor care for mothers. But it did buy all these and more for the men and women paid by heavy taxes out of the pockets of burdened taxpayers and who went around *telling* mothers *how* to feed children *if they had food to give them.* The blind also get an annual appropriation of $3,000,000. This too is to be spent under the thumb of the politically appointed Social Security Board. It is noteworthy *that none of these taxwrested millions are turned over to the medical profession to administrate, but that each and every appropriation in the provisions of its spending, bring public health as involving sanitation and prophylaxis and the general practice of medicine further and further into the octopodan clutches of communism and socialism. Bureaucrats at Washington feed the taxpayers pipe dreams that are solemnly regarded, as substantialities as firm as Gibraltar.*

Remember that the Social Security Board consists of three members APPOINTED BY THE PRESIDENT BY AND WITH THE CONSENT OF THE SENATE.

The one slight concession to criticism lies in the fact that not more than two members of the board can be members of the same political party.

BUT, note that the very *"funds or foundations organized and operated exclusively for charitable, scientific or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholder or individual; or corporations, or community chests are liable for taxation."*

Yet it is THESE SAME FUNDS, FOUNDATIONS, COMMUNITY CHESTS AND CORPORATIONS THAT STAND UNACQUITTED TODAY OF THE CHARGE OF BEING THE RICHEST, MOST POWERFUL COMMUNISTIC ELEMENT IN THE UNITED STATES AT THE WRITING AND ACCUSED OF HAVING THEMSELVES INSPIRED AND EDITED THE WRITING OF THE SOCIAL SECURITY ACT.

The sociological departments of these organizations have good right to "have it in" for organized medicine. For these departments to a large extent have had such a grand good time practicing medicine themselves without interference or without the expense or burden or bother of having had medical educations. A new Krafft-Ebing, an American Jung or Freud might compile statistics to show how many "old-maids," spinsters either by desire or compulsion, secure vicarious maternal thrills from telling their pregnant sisters how to be mothers, or-and this is the other side of the question—how NOT to be!

Health insurance is the white-haired boy among the bulk of these "foundation" groups. While the S.S.A. makes no specific reference to state medicine and health insurance, in the new law the germ of it is there, wide awake and doing its damage to the entire social structure of the nation as efficiently as any group of death dealing bacteria. As a matter of fact among the cognoscenti, "health insurance" and "social insurance" have long been interchangeable terms, so much so that the synonymity needs no explanation, at any place or time.

In conclusion we quite appropriately quote the editorial comment appearing in the *Journal of*

the American Medical Association under date of August 24, 1935, which ran:

"The Social Security Act is designed to work a revolution in the social and political relations of the people and of the several states to the federal government. To what extent it is constitutional and to what extent unconstitutional is a question that THE JOURNAL cannot decide. Fortunately, it is not called on to do so. The sooner the question is decided by the courts, however, the better it will be for all concerned. In carrying out the provisions of the act in the fields of medicine and public health, the officers charged with that duty are certain to find themselves handicapped by the scarcity of competent skilled and experienced assistants and workers in practically every grade of service called for."

However no medical group or community, that is patriotic or scientific, in sincerity dare fall asleep on the task of watching its workings. It looks now as if the octopus has a menacing start.

The passing of the social security act brings us one step nearer to the menace of lay dictated, Washington directed medicine and demands an organized, solidified State and National medical association.

SPENDING YOUR WEEK-END IN A HOSPITAL

A great many disconcerting conceits emanate from Manhattan borough. A popular play of some seasons since called "The New York Idea," frightened the very spinal columns of dozens of "Dulcy's" and "Babbitt's." Unfortunately many of the principles set forth therein proved prophetic. New York is a magnificent metropolis populated with persons of intelligence and renown and initiative. So much initiative in fact, that many good Americans are quite put to it, to keep pace with the New York idea.

A slice of such initiative and the latest startling "New York Idea" to flabbergast a somewhat conventional section of United States citizenry is the conceit to "spend your week-end in a hospital."

Subscribers to New York's the "Group Hospitalization Plan" pay an annual fee of three cents per diem, and are entitled to free hospital service of three weeks per year. "Caveat emptor" having been taken well to heart by these clever three-centers, in order to get their money's worth, the wary buyers in these instances are annually taking ten week-ends in hospitals.

Of course the rest does them good. No chronic, nor even serious condition can be well diagnosed and thoroughly cured in the Saturday-to-Monday scheme. Such a system, of course, permits alleviation of many minor ailments without losing "business hours." More than anything else however, the "week-end hospital holiday" holds the "mirror up to nature"—the meretricious nature of publicly and lay controlled "sickness" or "health" insurance. Champions of these fallacious, socialistic, incompetent, extravagant, theoristic schemes take great pride in the fact that in Germany and England the pro rata increase in illnesses and invalids had almost a triple per capita rate within a very few years after compulsory health and sickness insurance adoption.

Unfortunately this increase does not mean an improved public health. Even statisticians are making this discovery. What it does mean is that medicine, public health systems and the allied machinery are being made the target for the neurotic, the indolent, and the incompetent who would rather go to a bed for a sore corn than to go to the trouble of taking a foot bath, before cutting off the offending callous. Also that it opens the door a bit wider for the ingress of state medicine.

Taking a serious illness by the forelock will often save a life, or at least a permanent disability. Nurturing a petty complanit by full disabiltalization for one day or even three, does more harm than good outside of the fact that such complete care and rest may force the patient into communion with such conscience as he may have. *Medical men find that under all of these health insurance schemes malingerers thrive like mushrooms in the rain.* Such systems tend to increase rather than to decrease the cost of medical care, and are about as efficacious as a throwback to the medieval England cure for rupture that prescribed the afflicted man to pass through a cleft ash tree.

Dr. J. F. Kimball was responsible for putting through this latest New York idea. That it is a "voluntary," a regular three-cents-per-day free-will offering helps the matter not a whit. In due time these "voluntary" schemes with political opportunities invariably develop into "compul-

sory" schemes with public taxes and jobs for politicians. Communities with even "part-pay" compulsory health insurance find out sooner or later that once you catch a wildcat by the tail you find it pretty hard to let the animal go! Americans do not want "health" or "sickness" insurance that is heading towards what has aptly been phrased as "state control, state participation, state operation." Bureaucrats in Washington should keep their hands off the practice of medicine.

ENDOWED FOUNDATIONS—UNAMERICAN WAYS

With something like $1,400,000,000 of American money tied up in "endowed foundations," and an expenditure therefrom of something like $70,000,000 annually it is tragic to contemplate the way in which fortunes amassed by American pioneers are squandered in the ways that lead toward the destruction of America itself.

If the dead could rise in a species of premature or sample or dress rehearsal of Judgment Day, what a scattering of day dreamers and political tight-rope performers would occur!

For unfortunately the control of many of these millions is vested in trustees or administrators chosen for their supposed sociological competence, which is really but a mask for communistic consciousness.

The most powerful entering wedge for communism and for socialism in America that can be effected is through such control of the medical profession and of the home and the public health as will follow in the wake of socialized or state medicine. There has been a howl echoing through the highlands and a wail in the valley of our national terrain as to the "high cost of medical care." Why not reverse the spotlight? Throw the glare of publicity, the analysis of maintenance upon these bureaucrats who form the "organization of foundations" and who have practically lashed to the mast every other group and organization in the country. To this group is attributed the writing of President Roosevelt's "Social Security Bill" and much other legislation that actually belongs in the soviet and under a flag of all red, rather than one of Red, White and Blue! It would be interesting to take an accurate census as to how many of these trustees and foundation potentates, betraying the trust and faith of dead American patriots, fought in the World War or ever rendered any other kind of national service that brought a single iota of risk to their un-American hides!

Although established primarily as dispensers of philanthropy, yearly these terrible foundations dispense more and more propaganda tending to pauperize rather than to patriotize the country. They are a menace, not inherently but by the vicious overindulgence of selfarrogated power displayed by their administrators. It is a frightful example of the "Tail wagging the dog." Probably the idea back of this moneyed menace is that the founders are dead, and that a dead man is a dead man, and no two ways about it, and that so long as the trough is full there will they wallow!

THE 1936 ANNUAL MEETING

Stimulated by the success of the 1935 annual meeting of the Illinois State Medical Society held in Rockford last May, plans are already under way for another highly successful meeting to be held in Springfield on May 19, 20, 21, 1936.

With the consent of the Council, Dr. R. F. Herndon, of Springfield, has been selected as General Chairman of the Committtee on Arrangements. The Abraham Lincoln Hotel has been selected as the general hotel headquarters, and the meetings and exhibits will be cared for at the Knights of Columbus Club, where the recent Springfield meetings of the Society have been held.

The Committee on Scientific Exhibits expects to have the finest scientific display in the history of the Society, and a great deal of space will be devoted for their showing. Suitable awards will be made for the best exhibits in each of the three general classes. Members of the Society who desire to present a scientific exhibit may get complete details relative to the requirements and the classifications from the Secretary of the Committee on Scientific Exhibits, Dr. N. S. Davis, III, 700 North Michigan Avenue, Chicago.

The Scientific Committee, composed of the chairman and secretary of the five scientific sections, with the President and the Secretary of the Society, will meet during the fall to tentatively outline the plans for the presentation of

the scientific work for the meeting. Members having suggestions to make relative to this subject, may address the Secretary, Dr. Harold M. Camp, Monmouth, and their ideas will be referred to the committee at its meeting.

The Sangamon County Medical Society has had much experience in acting as host society for annual meetings, and every effort will be made by all interested in the success of the 1936 annual meeting to make it one of the largest and best meetings of all time.

FATAL ASTHMA: REPORT OF CASE WITH BRONCHIAL MEASUREMENTS

The case reported is, Howard M. Bubert and C. Gardner Warner, Baltimore (*Journal A. M. A.,* April 27, 1935), believe, a fatality from true bronchial asthma. From a pathologic standpoint the changes observed in the bronchial structures as well as the unusual contents of the Lumen coincide with those reported by Huber and Koesser and by Alexander and Kountz. In the authors' opinion, whorling and inspissation of mucus, together with the heavy eosinophilic infiltration, are characteristic of bronchial asthma. These mucous casts of the small bronchi represent embryonic Curschmann's spirals, which are later coughed up, after the relaxation of the muscle spasm. They should be present "in situ" in those cases in which death comes during an asthmatic paroxysm. The degeneration of the mucous glands is probably the result of prolonged overactivity. The eosinophilic infiltration is as yet inadequately explained. The changes in the heart and kidneys in the case reported were negligible. The slight hypertrophy of the right ventricle was to be expected with partial obliteration of the capillary bed by the associated emphysema. The manifestations of a mild chronic nephritis with some tubular degeneration appears unrelated to the outstanding features in the case.

PERIPHERAL VASCULAR DISEASE: ITS SIGNIFICANCE FOR GENERAL PRACTITIONERS AND SPECIALISTS

Géza de Takàts, Chicago (*Journal A. M. A.,* April 27, 1935), points out that it is no exaggeration to say that thousands of individuals are unconscious or mildly conscious of a progressive interference with their peripheral circulation. Their feet may be pulseless but still in a stage of compensation. Their "rheumatic" pains come and go with changes of weather, mechanical stress or emotional load. An occasional numbness or tingling of the extremities is disregarded. They undergo an annual or semiannual physical examination during which peripheral circulation is ignored, although the heart is carefully examined, chest plates are taken and electrocardiograms are read. As a result, the middle aged wage earner, the insured policyholder, or the railroad or street car conductor suddenly develops a serious interference with the peripheral blood flow. Undoubtedly the general practitioner sees these patients first. Many cases of peripheral vascular disease are also encountered by internists, orthopedic surgeons, traumatic and industrial surgeons, neurologists and dermatologists, whose special field of interest lies somewhat apart from problems of peripheral circulation. The study of peripheral circulation has advanced to a point at which a simple office procedure can be included in the course of a thorough physical examination. The author outlines such methods of examination, evaluates their meaning and indicates the therapy of the most common peripheral circulatory disturbances.

PAPILLEDEMA IN UNDULANT FEVER

C. W. Rutherford, Iowa City (*Journal A. M. A.,* April 27, 1935), states that diagnoses of undulant fever were made in sixty-three patients admitted to the University Hospital from June 1927 to August 1934. Three of the series, white men aged from 20 to 27 years, showed disk changes. The three were admitted within a period of fifteen months. Melitensis infection of the central nervous system occurs occasionally with or without ocular complications. A summary of sixty-three cases of undulant fever shows that in three there were bilateral papilledema, an increase in the spinal fluid pressure, mononuclear pleocytosis and evidence on which to base a diagnosis of infection of the central nervous system by some variety of the melitensis organism. Five cases were found in the literature; the disk changes observed in them can be interpreted as papilledema. The diagnosis of undulant fever is admittedly difficult. Papilledema is occasionally found in patients in whom the symtomatology is indefinite and leading signs are absent. It is in such cases that undulant fever should be considered in the differential diagnosis.

POLLEN STUDIES IN SELECTED AREAS

In the nation-wide five-year pollen survey (1929 to 1933) O. C. Durham, North Chicago, Ill. (*Journal A. M. A.,* April 27, 1935), studied the distribution and behavior of the various kinds of air-borne pollen in the more densely populated areas. The data from such places are useful to physicians in interpreting skin reactions, selecting suitable pollens for treatment and planning treatment schedules. In the course of this work a number of localities were noted where the atmospheric concentration of ragweed pollen is comparatively low. The figures are only approximate. The amount of air-borne pollen in any locality varies from year to year, depending on wind and weather. A comparison of the number of days in each of eighty-five localities when the air carried an average of twenty-five or more granules of ragweed pollen per cubic yard is given.

PASS THE MUSTARD

Cannibal: "We've just captured an actor."

Chief: "Hurray! I was hoping for a good ham sandwich!"—*Penn. Punch Bowl.*

TO BE EXACT

She: "Did you get hurt when you were on the eleven?"

Jack: "No, it was while the eleven were on me."

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

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During the last few months a new problem of vital interest to the medical profession of the state has arisen. This is the result of a law passed at the last meeting of the Illinois State Legislature, whereby the care of the chronic indigents was made a responsibility of the Board of Supervisors instead of an individual responsibility of the Township and its Supervisor. This has caused great confusion due to the fact that there has been no funds allotted by the Board of Supervisors for this work and accordingly they are unable as well as unwilling to assume this responsibility. On the other hand, the Supervisors have alloted funds from their Township monies for this work, but are no longer legally permitted to use same. Incidentally, it may be mentioned that in many instances the Supervisors have allotted funds from their Township from their hands. We as medical men are not directly interested in the political phase of the problem, but are vitally interested in the care of the chronic indigent. In spite of the fact that no funds have been appropriated for the medical care of the indigent, capable of use since the first of July, 1935, we have been expected to carry on without a definite promise of any future payment for our services. And we are happy to be able to say that to the best of our knowledge, there has been no failure on the part of the medical profession to carry on in the proper manner. However, with all this confusion, there are grave dangers of changes being made in the manner of conducting the medical care of the indigent which is inimical to the future of the medical profession. This is due to the attempts to appoint one or two men in each county to act as County Physicians, at reduced prices, of course, to give this care. Now, all of us know that any such plan does away entirely with one of the things we have been talking about and fighting for the past several years, namely the priviledge of the indigent to select their own physician. If not allowed to do so, in most cases they refuse the so-called county physician and call instead some kind physician, who renders the necessary service in spite of the knowledge that he will never be paid. It is regrettable that the Illinois Medical Society has no definite plan which can be given to the component societies to guide them in arriving at the proper solution of the problem. But while there has been much talk about what should be done as yet there has been no concerted action.

We must not forget that we are leaving a great opportunity to the reformers and idealists to advance the cause of Socialized Medicine, for if they can incorporate the medical care of both the chronic indigent and the unemployed under their supervision and then appoint a County Physician or Surgeon in each County, they have the nucleus of an organization to be taken over at the earliest opportunity, and they are constantly trying to find the opportunity. This is an excellent time for the Physicians of each County to meet and refuse to consider such a position as referred to above and if they will stick together, such an appointment cannot and will not be made over their protest aided by their friends and patients. It will take a little effort and time to combat this attempt, but it can be done easier at this time than ever again. Naturally, such a position will appeal to some men in every county, but if they are talked to and the entire situation explained to them, there should be little trouble in convincing them that the acceptance of such a plan is dangerous to the future of medical profession.

The best plan brought to attention of your committee for a temporary solution of this problem and we hope that the problem is so temporary that it will be changed back to the original method of Township responsibility at one of the proposed special sessions of the legislature this October, is for the Physician of every County

in the state to offer to do the chronic indigent work for the County Board of Supervisors at the same rate and prices they are now giving the Illinois Emergency Relief Commission. This will give all the Physicians in the state some additional income, will permit the sick to have the physician of their choice and help to keep under some little control the efforts of the reformers to build a skeleton organization to use when as and if they are able to make any further progress toward State Medicine. Certainly there is much to be said in favor of even such a plan and if adopted we hope that some of the red tape of the IERC will be omitted.

On September 8, 1935, the Committee on Medical Economics of the Illinois State Medical Society met at Chicago to discuss the problems of organized medicine and the procedure of the committee for the year of 1935-1936. They were in agreement that there was a great amount of work to be done. After considerable discussion it was agreed that the most important thing for the committee to try to accomplish was the continued education of both the medical profession and the laity along economic lines. The surface was just scratched the last year, but they are convinced that there is a great interest in this subject and it is up to organized medicine to do the work. Miss McArthur of the Educational Committee tells us that there is a great demand for speakers on medical subjects by the laity, but at present there are not adequate speakers available. Accordingly it was agreed to make a great effort to locate, train, and make available speakers in all parts of the state. This was to be accomplished through the aid of the Councilors who would select capable speakers in their district, and through the office of the Secretary and the Educational Committee. These men would be furnished the necessary information so that they could go out to lay organizations in their part of the state. We hope that there will be a response on the part of the medical profession that is worthy of the importance of the subject as well as the opportunity of accomplishments. Any man who feels the urge to help in this work should get in touch with his district Councilor.

Following this article is one by the Secretary of the Illinois State Medical Society on "The Federal Social Security Act." This is a very appropriate time to learn what this act means to the medical profession and it is to be hoped that every physician in the state will take the time to read and think about this subject. If he will do that, we feel sure that he will use his influence against the extension of such socialistic experiments, which are but the first of a series of contemplated similar acts.

E. S. Hamilton,
Chairman of Committee on Medical Economics.

THE FEDERAL SOCIAL SECURITY ACT

After many months of deliberation in Congress the Federal Social Security Act became a law on August 14, 1935. There are a number of things in this Act which are of interest to members of the medical profession as dispensers of medical care and others of interest to them as taxpayers.

The Act is divided into eleven titles, nine of which are based on the principle of Federal-State co-operation. Before it is in operation in individual states, it is necessary for the state legislatures to pass enabling acts and then to submit their plan for the operation of the several functions for the approval of the proper bureau or board in Washington.

Congress adjourned without making the necessary appropriations to permit the immediate operation of the Act and it seems quite probable that this will be one of the first duties of the next congressional session.

The Security Act calls for services to the blind, the aged, the unemployed, maternal and child health, crippled children, vocational rehabilitation, child welfare and public health work.

The sum of $8,000,000 is appropriated annually through the United States Public Health Service to be allotted to the states and to be used in aiding the carrying on of public health work. Several suggestions have been made as to the methods by which this money can be used, among which are adding to the personnel of organized health departments, formation of county or district health units, making health surveys, etc.

The Act creates a Social Security Board to consist of three members to be selected by the President and not more than two of the members of the same political party. The Board in addition to the responsibilities pertaining to the operation of the Act, is also charged with the responsibility of making studies and later recommendations to Congress for increasing the va-

rious aids to the people which have some bearing on their future security.

Although health insurance or governmental practice of medicine is not specifically mentioned, it is reasonable to believe that efforts will be made to include such a recommendation in the report of this Board to Congress at an early date.

Organized Medicine remains unalterably opposed to health insurance, and still approves the ten point program adopted by the House of Delegates of the American Medical Association at the Cleveland meeting last year. The Illinois State Medical Society has repeatedly gone on record as approving the same program. It is therefore quite obvious that medical societies and physicians in general should be ever on guard and lose no time in making plans to continue the opposition to all threatening inroads on medical practice.

Several of the appropriations allotted to states under the Social Security Act are ridiculously low and entirely inadequate to be of material value to do the things which are proposed among the various "projects."

It has been proposed that a house to house canvas be made by selected workers for the purpose of ascertaining the health of the members of the families in an effort to determine the incidence of various diseases. We can readily imagine the results when these workers call at the home of individuals who "enjoy their symptoms" and appreciate the opportunity to discuss them. How many times will they record heart trouble, kidney disorder, liver, bladder trouble, rheumatism and perhaps a half dozen other ailments in the same patient when the family physician has realized for a long time that there is but little or perhaps no actual pathology present in the case.

It is possible that statistics so compiled will be used by propagandists in an effort to show the inadequacy of our present methods of caring for the sick, and physicians should be prepared to combat such arguments if they arise.

The Illinois Department of Public Health which was originally created after the Illinois State Medical Society had repeatedly appealed to the state legislature over a period of years for its development, has been able to carry on the work prescribed for it by law in a most commendable manner and on a relatively low biennial appropriation. The Department has never asked for Federal aid and to our knowledge no one has ever produced reliable statistics to show that it is incapable of caring for the public health needs of our state in any way.

When health departments become Federalized we can readily believe that there will be confusion and perhaps unfortunate controversies arising between State and Federal health workers. Under the wording of the Federal Security Act efforts can be made to control practically all public health work such as control of milk and water supplies, food inspection, sewage disposal, housing problems, venereal and contagious diseases, and many other things now under direct supervision of our state health department, for it is quite obvious that all of these have some bearing on maternal and child health, and other conditions which the Act is expected to aid.

If the Social Security Board should rule that these things must come under Federal supervision, it seems that there will be but little work left for our existing health departments, unless they are completely subsidized and federalized.

There is no definite proof available to show that maternal and infant mortality in the United States is higher than in other countries, provided the same standards are used in compiling statistics. There has been a gradual improvement in both mortality and morbidity statistics througout the world, and from statistics released by the League of Nations, we find that the lowest death rate in civilized countries is in the United States. Likewise we have the lowest death rate among infants based on each 1,000 live births, that is to be found anywhere, and a lower death rate from many other diseases.

Again there is no evidence available to show that Federal health workers are better trained or are superior in any way to those found in our existing health departments, yet it is proposed to have power concerning all health problems centralized in Washington.

Realizing that this is the time when our law makers are at home and available to their constituents, it seems that it is the logical time for all physicians to contact their legislative friends and give them reliable information on the subjects which will be before them at an early session of the legislature. Legislative and public opinion against any radical changes in existing but satisfactory methods of controlling disease

and against a system which has not produced standards of medical care and control of disease equal to those in this country, may be of inestimable value to both the laity and the Medical Profession.

The aid to be given in maternal and child health under the Security Act is in reality a continuation of the old Sheppard-Towner Act which Illinois wisely refused to accept some years ago. During the period of its operation, there was a general reduction in mortality and morbidity statistics throughout the country, but the three states which did not accept its provisions showed as great an improvement in these statistics as was shown in other states where it was in operation, and Illinois statistics were improved more than any other state. We progressed most satisfactorily without Sheppard-Towner assistance, and we can no doubt get along equally as well without other Federal aid.

The American Medical Association has compiled a number of interesting pamphlets of an informative nature which any physician may have without cost, by writing the Secretary, or the Bureau of Economics of the American Medical Association, 535 North Dearborn Street, Chicago.

There should be no truce, no let up in our activities, but we should endeavor to get all available information constantly and tell our legislative friends as well as the public in general what it is all about, and why we believe it is not for the best interest of our people.

Harold M. Camp, M. D.

Correspondence

THE ALLEGED HARMFULNESS OF MEDICINAL MINERAL OIL

Elizabeth, N. J.,
Sept. 11, 1935.

To The Editor:

In the March, 1935, issue of the Illinois Medical Journal (page 236) appeared a paper entitled "Unsaturated Fatty Acid (vitamin F) Deficiency" by Mildred Oncken, M.S., Chicago. Without taking issue with the main thesis of that paper, i.e., that the unsaturated fatty acids have an indispensable nutritive function, it is desirable to point out and correct a number of statements regarding medicinal mineral oil which it is felt are very misleading.

Miss Oncken twice states that mineral oil is substituted for fat in foods and gives the impression that this practice is relatively common. In my personal experience of fifteen years in the technical service of one of the largest producers of medicinal mineral oil in the world, I have heard of but one instance in which such substitution has been even suggested. I do not regard the marketing of non-fattening mayonnaise as substitution because all the brands of this preparation are carefully labeled in such a manner as to disclaim food value—in fact their lack of food value is their *raison d'etre.*

In certain highly mechanized food industries such as baking and ice cream making, highly refined mineral oils of the medicinal type are used as lubricants whenever there is danger of small quantities of the oil becoming mixed with the food substances. This again can in no wise be considered a substitution of mineral oil for food fats.

If Miss Oncken is really cognizant of any deliberate substitution of mineral oil for natural fat in foods sold to the American public, she should notify the Food and Drug Administration of the Department of Agriculture who will doubtless be glad to take action.

Miss Oncken further refers to "the proved vitamin-depleting property of mineral oil" in such a way as to imply that any quantity of mineral oil under any conditions is likely to deplete the body of any or all vitamins. The work of Richard W. Jackson, R. A. Dutcher et al., Jennie I. Rowntree and others has, within the last four years, so clarified the whole question of vitamin diversion by mineral oil that there is no longer any excuse for such sweeping indictments. It may now be said quite positively that the only vitamin capable of being diverted by mineral oil is vitamin A and this only when the vitamin A is ingested in the form of carotene, not when the actual vitamin, the sterol as found in fish liver oils, is taken. Furthermore, this diversion effect was found to be clearly distinguishable only in the case of animals receiving a bare maintenance ration of vitamin A. There is no evidence that the other fat soluble vitamin, namely, vitamin D, is diverted by mineral oil.

Almost obviously the water soluble vitamins B-1, B-2 (F, G) and C are not liable to such diversion. Actual danger from vitamin A depletion would therefore exist only in the case of poorly nourished individuals getting a bare maintenance requirement of vitamin A and ingesting mineral oil over long periods of time.

Miss Oncken refers also to the "absolute valueless nutritive property" of mineral oil by which I suppose she means its complete lack of food value. This, of course, is universally understood and constitutes its great advantage when used as an intestinal lubricant.

The most serious accusation which this author brings against mineral oil, however, is in her last paragraph wherein she refers to "the lurking carcinogenetic property of mineral oil which has been quite repeatedly mentioned in unbiased medical literature but with equal regularity ignored." This indictment which incriminates by implication almost the whole of medical literature and the medical profession is singularly inept in view of the very thorough and painstaking work which has been done in recent years by many competent investigators including, especially, the Manchester Committee on Cancer and its indefatigable research staff headed by C. C. Twort. That committee repeatedly emphasizes (as, for example, in its reports of 1932-33 and 1934) that white oils such as medicinal liquid paraffin are totally free from carcinogenic properties. This opinion is expressed in the paper on the Carcinogenic Potency of Mineral Oils by C. C. Twort and J. M. Twort (J. Ind. Hyg. 13: 204, 1931); "medicinal liquid paraffin has given consistently negative results" as well as in an earlier paper by C. C. Twort and J. D. Fulton "Experiments on the Nature of the Carcinogenic Agents in Mineral Oils" (J. Path. Bact. 32: 149-161, 1929) wherein an oil repeatedly treated with sulphuric acid in the manner used in manufacturing medicinal mineral oils caused no tumors in 400 animals over a period of 58 to 70 weeks.

The whole question of cancer causation by intensive contact with mineral oils has attracted serious attention chiefly in England and Scotland where Scotch shale oil distillates containing notable proportions of anthracene derivatives are in common use as lubricants. Even such distillates, when intensively treated with sulphuric acid, lose completely their carcinogenic properties. In the Manchester Committee's reports for 1932, 33 and 34, C. C. Twort gave a table correlating carcinogenic potency with geographic origin showing that even in a crude or technical state American oils are far safer than oils from some foreign sources.

In our own country, the most exhaustive research was published in 1930 by Dr. Francis Carter Wood, Director of the Crocker Institute of Cancer Research, under the title "The Non-Carcinogenic Nature of Purified Mineral Oils." (J. A. M. A., 94: 1641-1643, 1930). Dr. Wood not only discussed the general considerations which might bear upon the problem and noted the absence of any reported evidence but performed skin tests on 200 mice and intestinal tests on 200 mice and 600 white rats. Some of these tests lasted for a year. Two leading brands of American medicinal mineral oil, namely, Nujol and Squibb's Liquid Petrolatum, were employed. In no case was there any evidence of cancer.

Miss Oncken's unwarranted attack upon medicinal mineral oil seems especially uncalled for since it is scarcely conceivable that mineral oil administration would interfere with the assimilation of the unsaturated fatty acids present in combined form in our food. Her designation of unsaturated fatty acids as "Vitamin F" is not only confusing owing to the prior use of the term Vitamin F as a synonym for vitamin B-1 but is also inappropriate owing to the fact that the unsaturated fatty acids are a relatively massive food factor not comparable in potency to the isolated vitamins already known, and properly to be regarded merely as an indispensable fraction of our fat supply, scarcely as an "accessory food factor."

By virtue of their mere quantity in a well-balanced ration, it is unlikely that they would be diverted to any serious extent by the usual quantities of medicinal mineral oil consumed. At any rate, this conceivable diversion of unsaturated acids by mineral oil would seem to be a problem suitable for attack by the experimental method rather than by propaganda.

Stanco Incorporated.

DUDLEY H. GRANT, M.S.

SCIENTIFIC EXHIBITS FOR THE SPRINGFIELD MEETING

Your Committee is informed that at the Springfield meeting, May 19, 20, 21, 1936, at least as much space will be available for scientific exhibits as there was at the Rockford meeting. It is hoped that the exhibits at Springfield will be better than those at any previous meeting.

In 1936 there will be no cash awards but silver and bronze medals and certificates of merits in the following classes:

Class 1. Exhibits of individual investigations, judged on the basis of originality and excellence of presentation.

Class 2. Exhibits that do not exemplify purely experimental studies, judged on excellence of presentation.

Class 3. Educational exhibits.

It may be possible for the Committee to arrange special exhibits in connection with the programs of joint meetings of the Sections. Such special exhibits will not be open to awards.

It is hoped that in 1936 there will be more exhibits from outside Cook County. It is probable that most of the exhibits in Class 1 will be from Cook County as most of the facilities for such work are located in Chicago. Educational exhibits and exhibits that do not exemplify purely experimental work can, however, be presented just as well by those from less populous areas. Family doctors might make contributions of inestimable value, by preparing graphs and charts on morbidity and mortality in their communities, on familial incidence of various infectious diseases, of cancer, of arteriosclerosis and its results, of hypertension, diabetes, etc. Furthermore there are many problems in industrial medicine peculiar to industries that do not exist in Cook County, regarding which interesting exhibits could be prepared. A number of exhibit booths are being reserved for exhibits originating outside of Cook County.

It takes time to prepare scientific exhibits and to assemble the material on which they are based. There remain seven months for this work. You will be more apt to do it if you have actually applied for space. Dr. N. S. Davis, III, 700 North Michigan Avenue, Secretary of the Committee on Scientific Exhibits, will supply application blanks to all who desire them.

J. S. Templeton, *Chairman.*
James P. Simonds
Robert Berghoff
Charles Harmon
N. S. Davis, III, *Secretary.*

OTHO BOYD WILL—OBITUARY

Whereas, Our beloved fellow member and colleague, Otho Boyd Will, has been called from his earthly labors; and

Whereas, During his sixty years or more of professional service, Dr. Otho Boyd Will was identified with nearly all efforts having to do with the advancement of scientific and organized medicine; and

Whereas, As President and in other official capacities in the Peoria County and Illinois State Medical Societies, the Peoria Hospital, editor of the *Peoria Medical Journal,* delegate to the State society and other organizations and institutions, he carried out his responsibilities with credit to himself, to the profession he loved, and to his fellow citizens; now therefore be it

Resolved, By the Board of Councilors of the Illinois State Medical Society that the sympathy of the members of this association be extended to the bereaved family; and be it further

Resolved, That a copy of these resolutions be spread upon the minutes of the council, that they be printed in the Bulletin of the Peoria County Medical Society, in the Illinois Medical Journal, and a copy be sent to the family.

E. P. Coleman,
I. H. Neece,
Charles J. Whalen.

DISSOLVING KIDNEY STONES WITH VITAMINS

Charles C. Higgins, M. D. (Surgical Clinics of North America, Cleveland Clinic No. 15, 923-936, 1935).

Under the title Medical Management of Urinary Lithiasis says: (abstract) White rats maintained a long time on a diet deficient in *Vitamin A* develop urinary lithiasis in a large proportion. Last eight months selected groups

of patients with urinary calculi have been treated by a dietary regimen.

1. When patient refused operation.
2. Patients with bilateral renal calculi when operation was not deemed advisable.
3. With calculi in one of calices but no obstruction.
4. With small calculi in renal pelvis without obstruction.
5. With calculi passed often but not demonstrated by Roentgen examination.
6. With calculi of size to require nephrectomy.
7. When it was desired to prevent recurrence after operative removal of stone.

As a rule, a high vitamin (especially vitamin A) acid-ash diet is sufficient to give the urine an acid reaction, but in patients with a renal infection from proteus organisms acidifying agents as well as vitamin A must be administered.

Vitamin A is included in diet with haliver oil or carotone in oil capsules T. I. D.

"I now have complete reports of 18 cases in which stones in the kidney have entirely disappeared under medical management, and detailed reports of the cases will appear in a later publication." (7 radiograms) stones before treatment; disappear after.

BACK TO THE CONSTITUTION

The future outlook of the country shows clearly that the Federal Government is striving to control the schools of the country, to rock the cradles (if the birth controlists permit babies to be born) to nationalize medicine, education, labor, railroads, farming, stock yards, dictating personal habits of individuals and finally controlling the religion of our people.

ST. LOUIS MEDICAL SOCIETY INVITES ILLINOIS PHYSICIANS

The 29th Annual Meeting of the Southern Medical Association, the second largest medical organization in the United States, will be held in St. Louis November 19-22.

The unusual clinical facilities of the two medical schools and the numerous hospitals, combined with the high standing of the medical profession, and the excellent hotel accommodations make St. Louis an ideal city for this medical gathering.

Addresses and papers will be presented by distinguished clinicians, not only from the South, but from all over the United States as well as from several foreign countries.

The St. Louis Medical Society extends a very cordial invitation to all physicians in good standing in their State and Provincial medical societies to attend this meeting.

SPECIAL PROGRAM UNDER DIRECTION OF THE MAYO FOUNDATION

A special program of lectures and demonstrations in medicine will be held under the direction of The Mayo Foundation from November 11 to 15, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings symposiums will be conducted on gastro-enterology, postoperative chest complications, hematology, diseases of the rectum and anus, treatment of syphilis, some aspects of endocrinology, and physiotherapy, including fever therapy. In addition one clinico-pathologic conference will be held.

While this program is arranged primarily for the Fellows of the Foundation, visiting physicians are invited to attend.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

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There will be a meeting of the Board of Directors at the Palmer House in Chicago, at 10 A. M., Saturday, October 19, 1935.

MR. W. D. CHAPMAN, President.

IRRITATION FROM CIGARETTE SMOKE

Abstract

Flinn, Frederick B.—Some Clinical Observations on the Influence of Certain Hygroscopic Agents in Cigarettes. Laryngoscope, 1935, XLV No. 2, 149-154.—Mulinos & Osborne (Pharmacology of Inflammation III. Influence of Hygroscopic Agents on Irritation from Cigarette Smoke. Proc. Soc. Exper. Biol. and Med. 32: 241-245, 1934) showed, using animals, the edema caused by cigarettes in which diethylene glycol was used as hygroscope agent to be less than that from cigarettes in which glycerine was used. This paper reports the effects of cigarettes, in which diethylene glycol and glycerine respectively are used as hygroscopic agents, on the mucous membrane of the upper respiratory tract.

"At the beginning of the experiment 73.7 per cent. showed on examination a congested condition of the pharynx and larynx, 66.2 per cent. had coughs, 7 per cent. had an irritation of the tongue, —. After smoking the diethylene cigarette for from three to four weeks the congestion had disappeared in 62.3 per cent. and the throat looked normal. The other 37.7 per cent. showed considerable improvement. The cough disappeared in 75.6 per cent. while in 26.4 per cent. no change could be detected. The tongue conditions cleared up completely in each case." On putting the subjects back on glycerine treated cigarettes, "Eighty per cent. showed a return to the congested condition of the pharynx and larynx inside of a week and in many cases the patient refused to continue to smoke them and the situation had to be explained to them. Only 34 per cent. had a return of the cough and in practically every case the tongue condition returned."

"Summary: The combustion products of glycerine when it is used as a hygroscopic agent in cigarettes will under certain conditions cause an irritation of the throat. The combustion products of diethylene glycol cause only a slight irritation, if any, of the throat. There is some evidence that they may be beneficial where irritation is present."

INHERITANCE, NOT GLANDS, DETERMINES PERSONALITY

Personality is not so much a matter of glands as of inheritance, Dr. Walter Freeman, of George Washington University, said at the meeting of the American College of Physicians.

The endocrine glands can bring out personality and enhance it by increasing the energy of the individual, but they cannot change the direction in which the energy will be expended, nor the type of personality an individual has. That is determined by genetic factors operating before he is born. In other words, you cannot make an extrovert out of an introvert by feeding him gland extracts. The effect of glands on personality is a matter of quantity, not quality.

Dr. Freeman's statements were based on studies of 1,400 cases of disease of the endocrine glands. Harmonious functioning of the glands is necessary for stability of temperament, Dr. Freeman pointed out. Irritability, or sensitivity of the nervous system, which would be reflected in the personality, may be caused by lack of balance between the endocrine glands, by an excess of thyroid hormone or a deficiency of parathyroid hormone, for example.

Science News Letter.

THE PRACTICE OF MEDICINE MUST BE A PROFESSION TO SUCCEED

During the thirty years of my experience in Germany I witnessed a deterioration of the medical profession. It was gradual. It came about by the removal of the sanctions of preferment by skill and the substitution of preferment by convenience. What I meean is that an insurance scheme soon becomes a business—it must do so to succeed, while the practice of medicine must be a profession to succeed at its best, and the two will not mix. In Germany the physician who was most adaptable to the advancement of the plans of the insurance officials, and who most pleased the patient for

reasons perhaps quite other than skill, obtained the most rapid preferment. It is true there were possibilities left which made it possible to adhere to higher standards—I for instance had such a possibility being a specialist—but many men who might have gone far were ruined by the stultifying panel practice.—Paul G. Frank, M. D., in the New York State Journal of Medicine.

THE LURE

"What bait do you use," said a Saint to the Devil,
"When you fish where the souls of men abound?"
"Well, for special tastes," said the King of evil,
"Gold and Fame are the best I've found."
"But for common use?" pursued the Saint.
"Ah, then," said the Devil, "I fish for Man, not men,
And a thing I hate
Is to change my bait;
So I fish with a woman the whole year round."

DO YOU KNOW THAT—

Cleveland Academy of Medicine holds yearly an exhibit of the hobbies of the physicians of the Society?

Having discovered that Bergamot Oil is equal to Phenol in its action on the tubercle bacilli, a new disinfectant is being developed?

It has been said that "the infant mortality rate is the most sensitive index that we possess of social welfare"?

A New York State official claims that more than any one other factor the improvement of the public milk supplies has been the most responsible for lowering the infant death rate in the past number of years?

The general death rate of children in the United States is about half the death rate of Indian children?

The tuberculosis death rate of the United States is about one-seventh of the death rate among the Indians?

It has been estimated that in New York City diabetes is more prevalent than tuberculosis?

In the past seventeen years trachoma has been reduced among the children of the Jewish schools in Palestine from 34% to 6.3%?

It has been estimated that about 7% show a natural immunity to dental decay?

The New York Dental Socicty has made arrangements to give advice by radio in cases of serious tooth trouble among the American sailors at sea?

WARNING AGAINST THE USE OF DINITROPHENOL

On the basis of observations in other countries—particularly the United States—the federal bureau of health has called urgent attention to the dangers that may be associated with the use of dinitrophenol by persons unfamiliar with its properties. Dinitrophenol and preparations containing this substance, if used at all, should be used experimentally and only under constant observation in clinics and hospitals, especial care being taken to determine the therapeutic dosage on the basis of the body weight. The federal bureau of health will, if necessary, adopt requisite measures for the prevention of damage to the health of the population. Thus far, according to the best information obtainable, dinitrophenol is little used in Germany.

UNSPECIFIC CHRONIC EPIDIDYMITIS

P. W. Braestrup, Copenhagen, says that in the majority of cases this disturbance is due to transplantation by the canalicular route of an inflammation from the urethra. The symptoms in chronic and subacute epididymitis resemble those of tuberculosis epididymitis, and clinical distinction may be impossible. Treatment consists of rest in bed and elevation of the scrotum for from eight to ten days. In the mild cases, in which the symptoms tend to recede rapidly, conservative treatment is continued; in the other cases, resection of the epididymis with the vas deferens is then done. Urethritis was confirmed in six of the eighteen cases reported, and in three there was pyuria. Five had a history of trauma. Fourteen were treated surgically; hemicastration was necessary in only one. The diagnosis was verified microscopically.

GIANT INFANTS IN MATERNAL DIABETES

Fischer, Leipzig, demonstrates with reports in the world literature that the infants of diabetic mothers frequently are of excessive weight. On the basis of a general analysis of the carbohydrate metabolism and of the changed metabolic conditions during pregnancy, the relations between mother and fetus, as regards the carbohydrate metabolism, are discussed. It is assumed that the increased maternal blood sugar content causes an oversupply of dextrose in the fetal circulation. The placenta supposedly plays no active part in this process. Since the fetus has an adequately functioning pancreatic island apparatus relatively early during its existence, it is capable of storing the oversupply of sugar in the form of glycogen. Moreover, the fetus develops beyond its normal size. The aid given to the maternal organism by the presence of a functioning fetal pancreas cannot be explained by a passage of insulin from the fetus to the mother but is rather the result of the continuous drawing off of considerable amounts of blood sugar.

JUST LIKE 'EM

They had been happy for a year. Then, one morning, the wife came downstairs to breakfast morose and wretched. She had no appetite, and would scarcely say a word.

"Come now, dear," said the husband, "if I don't know what's the matter, I certainly can't make it right, can I?"

"John," she said, "if ever I dream again that you have kissed another woman, I wont speak to you as long as I live."

NOTHING TO WEAR

"The dances are quite different today from what they were years ago."

"Indeed they are. In those days when a woman had nothing to wear she stayed at home."

Original Articles

MENINGOCOCCIC MENINGITIS IMPORTANCE OF INTRAVENOUS THERAPY

ARCHIBALD L. HOYNE, M.D.
CHICAGO

This subject is of exceptional importance at this time for two reasons: 1. There is an increased incidence of meningococcic meningitis in the United States. 2. We have improved methods of treatment.

Properly speaking, the term meningococcic meningitis is no more correct when applied to all types of meningococcic infection than is the expression infantile paralysis when used to describe all forms of poliomyelitis. A meningococcic infection may exist without meningitis, just as poliomyelitis can occur without paralysis. And with our recently acquired knowledge of this disease, it seems to me that an analogous comparison with poliomyelitis may also be made in another respect. Poliomyelitis is now generally regarded as a systemic infection and any form of paralysis that occurs is often viewed as a complication rather than a necessary part of the disease. In like manner, a meningococcus invasion should be considered as a general infection due to the meningococcus and when meningitis develops it should be looked upon as a complication due to a localization of the infection. Such an hypothesis is based on observation and treatment of approximately 2,500 cases during a period of years. Moreover, it is my expectation that sufficient evidence will soon be adduced to support this opinion without contradiction.

Because of the foregoing reasons, we have offered a new word "meningococcia"[1] and what we believe is a new classification for meningococcic infection. "Meningococcia" was suggested to include: 1. Meningococcic meningitis, 2. Meningococcemia with meningitis, 3. Meningococcemia without meningitis and 4. Meningococcus carriers.

If you accept the theory herein presented, its bearing on the treatment of meningococcic meningitis is readily apparent. Instead of merely attacking the complication at its site (meninges), treatment must be directed against a systemic disease, for on the basis of Ferry's work it seems apparent that it is the soluble toxin of the meningococcus which is primarily responsible for the symptoms of the disease.

Although we had no scientific foundation for our conclusion as early as 1918,[2] still we believed even then that antimeningococcus serum was of marked benefit when administered intravenously. Since that time, until the fall of 1933, all adult meningococcic meningitis patients admitted to my service at the Cook County Hospital were expected to receive antimeningococcus serum intravenously. When it was decided to test the efficiency of Ferry's[3] meningococcus antitoxin at the Cook County Hospital, all patients admitted to the Contagious Disease Department with meningococcic infection were treated intravenously. This was done regardless of age and irrespective of whether antitoxin or antimeningococcus serum was administered. About the same time a corresponding form of treatment was adopted for all meningococcus patients entering the Chicago Municipal Contagious Disease Hospital, although no antitoxin therapy was applied. It is this latter group, comprising 233 patients, with which we are principally concerned here. This total comprises all the meningococcus cases admitted during the years 1933, 1934, and for the first three months of 1935.

In Table 1 cases and deaths are exhibited according to age groups. The number of 48 hour deaths, that is those patients who died within that period of time after entering the hospital, is also set forth and the fatality rates are given. It will also be noted that the clinical diagnosis

TABLE 1

233 MENINGOCOCCIC MENINGITIS CASES.

Age	Cases	Deaths	48 Hr. Deaths	Fatality	Fatality Exclusive 48 Hr. Deaths	Confirmed Diagnosis Culture	Confirmed Smear	Confirmed %
Under 1	11	6	3	54.5%	37.5%	2	8	91
1-5	52	9	4	17.3	10.4	29	21	96
6-10	35	8	8	22.5	0.0	19	12	88
11-15	51	5	2	9.8	6.0	25	25	98
16-20	27	8	5	29.6	13.6	16	8	88
21-25	18	8	4	44.8	28.5	10	7	94
26-30	11	4	2	36.3	22.2	6	4	91
31-35	11	3	1	27.2	20.0	8	2	91
36-40	5	4	2	80.0	66.6	4	1	100
41-45	2	1	1	50.0	0.0	0	2	100
46	10	6	3	60.0	42.8	3	6	91
Total	233	62	35	26.6	13.6	123	96	94

From the Municipal Contagious Disease Hospital, Chicago Board of Health.

Read before Section on Public Health and Hygiene, Illinois Medical Society, Rockford, Illinois, May 22, 1935.

was confirmed by means of smear or culture in 93%. As might be expected, the two extremes of life tend to give the highest fatality rates, although this is not strictly so of the cases in this table. In the third five-year period, namely from eleven to fifteen, the chances of recovery seem best.

The method of treatment in meningococcia should be determined by the classification within which a particular patient is placed. Nevertheless, all patients with the exception of carriers should receive intravenous therapy. This holds true whether standard makes of antimeningococcus serum or Ferry's meningococcus antitoxin is to be administered. As proof of this assertion the low fatality rate of 26.6% for 233 cases illustrated in Table 1 is offered in evidence.

In class 1 meningococcus meningitis patients receive a lumbar puncture and spinal fluid is withdrawn slowly until it drips. Undiluted antimeningococcus serum or meningococcus antitoxin is then introduced through the needle by the gravity method. The amount of serum administered should be less than the volume of spinal fluid released. The spinal fluid is immediately examined for the presence of meningococci in order that the clinical diagnosis can be confirmed. A cell count and culture of the spinal fluid should also be made at once. With the finding of the organisms preparations are made for intravenous therapy.

Antimeningococcus serum or meningococcus antitoxin should always be diluted when given intravenously. Although we have seldom found it necessary, it is well to have adrenalin convenient in case of any unpleasant reaction. The serum or antitoxin is placed in 10% glucose or normal saline of equal volume or, preferably, twice the volume of the remedy.

As a rule we use 105 cc. of antimeningococcus serum or 90 cc. (30,000 units) of meningococcus antitoxin in 150 cc. to 250 cc. of 10% glucose. If necessary the vein should be cut down on for the required introduction. The solution must be warm and can be given by the drip method over a period of an hour or even more. Generally but one intravenous treatment of this kind is needed. However, it may be repeated if it seems advisable. The intraspinal therapy is repeated every 24 hours until the spinal fluid is clear and shown to be free of organisms by laboratory methods including culture.

In class 2, where the presence of petechiae clearly indicate meningococcemia as well as meningitis, the value of intravenous therapy is not likely to be disputed. The treatment of patients in this class is the same as for class 1 but a repetition of the intravenous dose is often an important factor in promoting recovery.

In class 3 the clinical findings are not the same as in class 1 and class 2. Consequently, we feel justified in deviating from a long accepted mode of treatment and have inaugurated what we believe is a new plan of procedure.

In class 3, the patient may be literally covered with petechiae and in coma yet there is no rigidity of the neck. In fact, there are no signs indicative of meningitis. Such a patient is suffering from an overwhelming toxemia. The clinical diagnosis of meningococcemia is confirmed by blood culture or by means of smear examination from a needled skin lesion (petechia). A patient of this kind is treated by massive doses of antimeningococcus serum or meningococcus antitoxin intravenously without resorting to lumbar puncture. The customary initial intravenous dose of the remedy may be repeated daily as long as seems desirable. Frequently the response of patients so treated is remarkable. Often within 24 hours the mentality is good, the temperature is approximately normal, and the general condition excellent. If patients in this class are given intraspinal medication, meningeal symptoms are likely to develop and may be explained by an irritation of the meninges due to the serum and resulting in a meningitis that was not originally present. We have had a number of recovered patients treated at the Cook County Contagious Disease Hospital without the introduction of serum spinally and in several instances without even a lumbar puncture.

Cisternal punctures need not be resorted to unless there is a definite block in the spinal canal. Ventricular puncture is rarely indicated. Irrational patients often require restraint and this method of control seems preferable to prescribing morphine which may cause cerebral edema. If a sedative is to be given paraldehyde will usually quiet the patient without unfavorable action. In all cases the eyes should be carefully examined. If there is the slightest evidence of conjunctivitis, atropine in ¼% solution should be dropped in the conjunctival sac until the pupils are well dilated.

In Table 2 of our series the cases are arranged according to sex and color as well as age, and it will be noted that there is the customary preponderance of males. Race and color seem to have no special significance in relation to the attack rate for this infection. It is rather a question of susceptibility and exposure. It may also be seen in Table 2 that the average duration of illness before serum treatment was 4.1 days. In this connection an interesting observation may be made among hospital patients with meningococcic meningitis. As a rule the higher death rates will be found among the patients who receive their first serum treatment late rather than among those who are given very early treatment. The explanation is that in the fulminating type of infection a prompt diagnosis is likely but death is probable in spite of treatment. On the other hand, among the less severe cases there may exist a marked resistance on the part of the patient. So although the diagnosis may be delayed there is usually a quick response when serum treatment is instituted. Nevertheless, the earlier treatment is begun the more favorable the outcome and there is no doubt that the fatality rate could be reduced considerably if all cases were diagnosed at the very onset of the infection.

In Table 3 complications are arranged in relation to the various age groups. It will be noted that arthritis is the most frequent. However, it is by no means the most serious. Only rarely does suppuration occur. Pneumonia, to which is commonly ascribed an important role in the fatality rates of meningococcus meningitis, was a factor in but five instances among the 62 deaths. Loss of vision and deafness are two of the major complications among those who survive meningococcic meningitis. In three of the 17 instances where there was loss of vision, blindness was bilateral. The eye condition may be an endophthalmitis, a panophthalmitis or an optic atrophy, and an early or late conjunctivitis is always a foreboding signal of danger. Although deafness is sometimes unilateral, when it occurs both ears are generally affected. If there is complete loss of hearing, it is practically always permanent. But if there is merely impairment of hearing full restoration of this faculty is possible eventually.

Hydrocephalus is the complication most to be feared in infants. Continuous spinal drainage by means of a rubber catheter as recently reported by Love[4] offers some hope for such conditions.

In Table 4 the 171 recovered patients are divided according to age groups and years of admission. Furthermore, it may be said that if reference to season is made, we find that meningococcic infections are particularly prevalent in the months of March and April.

Petechiae are shown to have been very common in our series being present in 64.3% of the recovered patients. Herpes, on the other hand, which is sometimes regarded as a favorable prognostic sign, occurred in but 15% of the recovered patients.

The average total amount of serum in cubic centimeters for the recovered patients according to age groups is also presented in Table 4, as

TABLE 2

233 MENINGOCOCCIC MENINGITIS CASES.

					Recovered Cases			Fatal Cases	
	Sex		Color		Aver.	Aver. No.	No.	Aver. No.	No.
Age	M	F	W	B	Days Ill	Punc.	Cist.	Punc.	Cist.
Under 1	6	5	10	1	5.8	5.2	3	2.5	4
1- 5	23	29	48	4	3.9	20.5	2	2.5	4
6-10	16	19	32	3	3.0	7.7	4	1.7	0
11-15	39	12	48	3	3.8	8.1	0	3.6	1
16-20	21	6	27	0	4.3	8.0	0	4.2	1
21-25	13	5	18	0	4.0	7.4	0	5.0	2
26-30	6	5	9	2	3.0	7.7	0	3.5	1
31-35	6	5	7	4	4.7	8.4	1	3.0	2
36-40	2	3	4	1	3.6	10.0	0	3.5	2
41-45	1	1	2	0	3.5	11.0	0	1.0	0
46	4	6	9	1	5.7	15.7	1	3.8	3
Total	138	95	214	19	4.1	9.9	11	3.1	20

TABLE 3

233 MENINGOCOCCIC MENINGITIS CASES.
COMPLICATIONS

Age	Cases	Arthritis	Pneumonia	Loss of Vision	Loss of Hearing	Pericarditis	Hydrocephalus	Per Cent with Complications
Under 1	11	1	0	0	0	0	1	18.0
1- 5	52	9	1	7*	2	0	0	36.5
6-10	35	3	0	2	6	0	0	31.4
11-15	51	9	1	1†	7	1	0	37.2
16-20	27	9	2	0	2	0	0	48.1
21-25	18	10	0	2	0	0	0	66.6
26-30	11	5	1	1	1	1	0	81.7
31-35	11	4	0	0	1	1	0	54.5
36-40	5	0	0	2	0	1	0	60.0
41-45	2	0	0	1	0	0	0	50.0
46-	10	2	0	1	1	0	0	40.0
Total	233	52	5	17	20	4‡	1	42.4

*Two cases, both eyes.
†Both eyes.
‡All died.

TABLE 4
MENINGOCOCCIC MENINGITIS
171 RECOVERED CASES

Age	Cases 1933	1934	1935	Petechia	Herpes	Average Amount of Serum	Average Number Days in Hospital
Under 1	3	2	0	1	0	61.2	15.0
1- 5	22	15	6	31	3	125.0	17.3
6-10	17	8	2	17	5	183.3	17.8
11-15	23	21	2	28	5	178.9	16.4
16-20	13	6	0	13	4	174.9	17.8
21-25	6	4	0	8	2	168.7	16.5
26-30	4	3	0	6	2	154.2	21.5
31-35	5	3	0	3	2	188.3	18.0
36-40	0	1	0	1	1	225.0	16.0
41-45	1	0	0	0	0	187.0	23.0
46-	1	3	0	2	2	270.0	27.7
Total	95	66	10	110	26	174.2	18.8

well as the average time of hospitalization. The average total amount of serum for each of the 171 recovered patients was 174.2 cc. and the average number of hospital days was 18.2.

The majority of the recovered patients were treated during the year 1933 but it was not until the last month of that year that intravenous therapy was adopted as routine treatment for all patients. There were 65 recovered patients who received an average of 57.2 cc. of serum intravenously (always diluted) and 33 of the cases that terminated fatally were similarly treated. Among the latter the average dose of serum intravenously was 59 cc. We now feel convinced that much larger doses are desirable for intravenous treatment, and that the efficiency of antimeningococcus serum is not dependent on any antibacterial qualities it may possess, but wholly upon whatever amount of antitoxin it happens to contain. For this reason, meningococcus antitoxin should give superior results.

Class 4 of meningococcia includes only meningococcus carriers. As a rule, carriers require no special treatment in so far as their own personal safety is concerned. The reason for this is the acknowledged fact that known carriers seldom develop the disease. They are carriers without symptoms of the disease because they are not susceptible. Nevertheless, a meningococcus carrier should be regarded as a source of danger to others, for if he comes in contact with susceptible individuals he may transmit a serious form of the infection to them. Therefore, carriers should be isolated. A dose of antimeningococcus serum or meningococcus antitoxin may be injected in the muscle as a precautionary measure, though the worth of such a procedure has not been fully determined. Fresh air and sunshine will probably accomplish as much in clearing up the carrier condition as the use of antiseptic nasal douches and gargles.

In the past, fatality rates for meningococcic meningitis have been exceedingly high, often ranging from 40 to 90%. However, with a continuation of the progress recently made through improved therapeutic measures a marked reduction in mortality figures seems assured.

Eventually the general level of fatality rates for meningococcic infections will probably not exceed those for diphtheria at the present time.

SUMMARY

1. A new word "Meningococcia" and a new classification for meningococcic infections is discussed.

2. Four tables with statistics relating to 233 cases of meningococcic meningitis are presented.

3. The importance of intravenous therapy is emphasized.

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DISCUSSION

Dr. Winston H. Tucker, Springfield: I should like to say a few words about our experience in Springfield with meningococcus meningitis. During the first three months of 1935 there were 70 cases of meningitis in this State outside of Chicago. During this same period there were approximately twice as many cases in Chicago. Of the 70 downstate cases, 23 occurred in Springfield. The Illinois Department of Public Health cooperated with the Springfield authorities in an attempt to control the outbreak.

Of the first six cases which occurred, only one had a fatal termination, but as the outbreak progressed the disease became more fulminating in character and the following nine cases had a fatal termination. As you can readily understand we were much concerned, because the several types of antiserum which were available proved ineffective.

At this critical time Dr. Hoyne's paper appeared in the J.A.M.A. and we decided to give the meningococcus antitoxin described therein a trial. Since that time eight new cases have occurred in Springfield and all of these patients have received meningococcus antitoxin by the

intravenous as well as the intraspinal route. No fatalities have occurred in this group of eight cases. Children received 60 cc. of antitoxin in approximately 120 cc. of 10% glucose by the intravenous route daily until definite signs of improvement were manifested. Adults received 90 cc. of antitoxin in approximately 200 cc. of 10% glucose by the intravenous route, as well as 30 cc. intraspinally. In our experience we have found this antitoxin to be of great value as a therapeutic measure.

I should like to illustrate the role which overcrowding plays in the spread of meningococcus meningitis. There were three Negro families in which there was a total of 11 persons living in one small four-room house. A fourteen year old boy was brought from this house to the hospital in a comatose condition, and it was found that he was suffering from meningococcus meningitis. He lived only a few hours after admission to the hospital. Two days following the death of this boy, two little girls in this same house, aged three and five years, developed meningitis. Meningococcus antitoxin was promptly administered and both of these children recovered.

I do not believe that Dr. Hoyne mentioned the occurrence of serum sickness in connection with the administration of meningococcus antitoxin. All of the eight patients who received this antitoxin developed generalized urticaria and a moderate elevation in temperature seven or eight days following the first injection. In some instances it was necessary to administer epinephrin. Urticaria persisted for two or three days, after which it gradually disappeared.

Dr. Hoyne has told you that meningococcus are often found in the blood stream as well as in the spinal fluid. Some investigators look upon the invasion of the spinal fluid by the meningococcus as a terminal phase of a generalized infection. It is for this reason that the administration of antitoxin by the intravenous route appears to us to be more important than administration by the intraspinal route.

Dr. R. E. Cummings, Chicago: Dr. Hoyne alluded in his paper to the possibly good prognostic value of the presence of herpes. Two years ago I listened to the presentation of a paper on a similar subject in the presentation of a hundred cases. The doctor in his presentation laid special stress on the good prognostic value in those cases of the presence of a definite opisthotonos and he went so far as to state that the greater opisthotonos the better the prognosis. He seemed to stress it. I know of no particular reason for it and the doctor made no reference to it. I wonder if he would tell us whether opisthotonos in a meningitis case is a good or bad sign or is there any value in it

Dr. Hoyne: Does it hold any particular relation as to the good or bad prognostic outcome of the patient? Not necessarily.

Dr. Cummings: Dr. Blatt, you recall the paper I have reference to. I never could quite figure that out but it was definitely alluded to in his paper.

Dr. Hoyne, in closing: I think the presence of opisthotonos does not necessarily indicate a bad prognosis, when occurring early in the course of the disease. Under such circumstances, good recoveries are often observed. However, when opisthotonos develops late, it usually signifies marked involvement at the base of the brain, frequently causing a block in the spinal canal, and this may explain a dry tap when lumbar puncture is undertaken. These cases require cistern punctures which as a rule are unnecessary. Late opisthotonos is generally a bad omen for the patient.

In reference to my remarks about treating patients solely by the intravenous method, I did not mean to imply that therapy can be administered to most patients in this manner. The cases that can be treated without lumbar puncture are the exceptional cases. Perhaps it is somewhat a matter of judgment. But many times a patient with meningococcemia who shows no signs of meningitis will make better progress without lumbar puncture, provided sufficient quantities of serum are given intravenously.

PNEUMONOKONIOSIS

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Pneumonokoniosis became a disease entity when man began to specialize in certain trades or occupations which were dusty. When early man found that certain other men could produce flints, arrow-heads, metals, and pottery better and easier than he could, localization of certain future industries and mines became a certainty. Sir Charles Lyell[1], and Dr. Isaac Taylor[2] have described such localization in prehistoric factories for the manufacture of flint implements. With this localization, dust hazards developed and respiratory diseases increased. These respiratory diseases such as asthma, pneumonia, bronchitis and tuberculosis, with dust inhalation as a predisposing factor, are called pneumonokonioses.

Under the general term of pneumonokonioses, various names are given to a type of disease produced by the particular dust inhaled; for instance, silicosis when produced by dust containing silicon dioxide. This is also known as miner's phthisis, miner's consumption and rot; asbestosis when produced by the inhalation of asbestos; siderosis when the disease is caused by the inhalation of metallic dust; byssinosis, when due to the inhalation of cotton dust; and, anthracosis when due to coal dust. Most city people have anthracosis in varying degrees which is only seen at the autopsy table. In the older literature

Read before Association of Railway Claim Agents, Chicago, April 1, 1935.

other terms are found for pneumonokoniosis. F. Oppert,[3] 1866, used the word melanosis of the lungs for diseases arising from the inhalation of dust. He also spoke of red lung disease as erythronosis, and blue lung disease as glaukonosis. Under this latter heading, I believe that he meant typical cases of silicosis, for in advance cases, the lungs have a slaty appearance. In 1845, Dr. Makeller[4] wrote in the *Edinburgh Monthly Journal* on black phthisis (induration induced by carbonaceous accumulation in the lungs of coal miners). Meinel[5] in 1869, proposed the name of chalicosis or chalicoconiosis respectively, as corresponding to the conception of a sand dust inhalation disease.

The Committee on Pneumonokoniosis of the Industrial Hygiene Section of the American Public Health Association[6] defined silicosis as a "disease due to breathing air containing silica (SiO_2), characterized anatomically by generalized fibrotic changes and the development of miliary nodulation in both lungs, and clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis (some or all of which symptoms may be present), and by characteristic x-ray findings." In case of death, a diagnosis must rest upon two findings; a characteristic fibrotic change seen in sections of the lungs microscopically; and, second, by a chemical examination showing an excess of silicon dioxide over that normally found, 2 mgms. or more per gram of dried tissue. However, fibrotic changes are not always seen in sections of the lungs until the silicon dioxide content is over 5 mgms. per gram of dried tissue. In three cases with a silicon dioxide content of over 12 mgms. per gram of dried tissue, the characteristic fibrotic whorls were absent. (The sections were examined by Drs. J. J. Moore and Ludwig Hektoen.) Gardner reported in a recent lecture, in Chicago, a similar condition. These findings may be easily verified by other experts, while there is nearly always a great disparity in the testimony of clinicians and radiologists.

In different countries, silicosis has been defined arbitrarily in the various stages. In the United States it is divided into first, second and third stage. The stages are defined as follows:[7] "The first stage means that definite physical signs of damage to the lungs has resulted from exposure to dust. The second stage means that definite and specific physical signs of silicosis are or have been present and that capacity for work has been impaired by the disease, though not seriously. The third stage means that specific physical signs of silicosis are or have been present and that the capacity for work has been seriously and permanently impaired by the disease."

Early History.—Many members of the medical and legal fraternities look upon pneumonokoniosis as an entirely new disease, never having heard of it or seen cases of it until recently. However, Hippocrates[8] in his "Epidemics," speaks of a metal digger who "has his right hypochondrium bent, a large spleen, and a costive belly; he breathes with difficulty, is of pale wan complexion, and is liable to swellings in his left knee." Here he speaks of shortness of breath, which is invariably the first, and in some cases the only objective sign of damage caused by dust inhalation. George Bower[9], who wrote under the "non de plume" of Georgius Agricola, in his famous work "De Re Mettallica," published in 1557 (translated by Herbert Hoover), mentions asthma due to the inhalation of dust in the blood and lungs, "when the dust is corrosive it ulcerates the lungs and produces consumption, hence it is, that in the Carpathian Mountains there are some women who have married seven husbands, all of whom this dreadful disease has brought to an early grave." Lohneiss[10], in 1690, referring to miners, describes the effects on them as follows: "The dust and stone fall upon the lungs, the men have lung disease, breathe with difficulty, and at last take consumption." Ursinius[11], in 1652, reported two forms of mountain sickness caused by the inhalation of dust. Little was written upon the subject of pneumonokoniosis from that time until 1717, when Ramazzini[12], wrote his famous book, "Diseases of Tradesman," incorporating his views from a personal investigation of mines and industry. The description he has portrayed of silicosis and other forms of pneumonokoniosis has changed but little up to the present time. The names of Bubbe[13], 1721, Leblanc[14], 1795, and Johnstone[15], 1799, were all aligned to the early history of pneumonokoniosis. Pierson[16] in 1813 applied the term "anthracosis" to lungs containing carbon particles. Collis[17] has shown that today the flintknappers of Brandon, still using

tools similar in shape to the deer-horn picks of their prehistoric ancestors, suffer a terrible mortality from phthisis induced by flint dust generated in their work. Early last century, Bourgoin[18] pointed out the ravages produced among the population of Meusnes in France by the introduction of the gun-flint industry. Chateauneuf[19] states that all who follow this flint industry are killed before their time, "for them, there is no old age." The doctors and officials of that time gave it as their opinion, the pulmonary phthisis was induced by prolonged inhalation of dust generated from working flints.

Harmful Dusts.—From the history preceding, some of the sources of the dust evil have been indicated. There are two important factors in the etiology of a dust-borne disease; the first, is the character and the amount of the dust inhaled; and, the second, the susceptibility of the individual to the influence of the dust inhaled. From the chemical standpoint, there are two types of dust, the organic and the inorganic. Any inorganic dust is capable of producing definite pathological changes in the lungs, if the exposure is sufficiently long. Collis[20] has stated in general that, "dusts appear to be more injurious as their chemical composition differs from that of the human body, or from the elements of which the body is normally composed.

1. *Organic Dusts.*—Workers exposed to organic dusts develop severe bronchitis. The least harmful kind of dust seems to be wheat flour dust, for it produces only a slight bronchitis and not fibrosis as the silica containing dusts. I have seen x-rays of two individuals claiming diseases caused by flour dust which did not show changes such as are seen in the first stage of silicosis. The changes are no more marked than are found in the chests of the average person living in our cities. Ramazzini[21] early describes a causal relationship between the dust inhalation and consumption, from hemp, and from the sifting of corn, stating that the men are "so plagued with this powder or dust, that when work is done they curse their trade with a thousand imprecations." The throat, the lungs, and the eyes, sustain no small damage by it. Some of the symptoms from inhaling organic dusts, may be due to the allergy acquired. Landis[22] examined the protocols of 50 persons who had been employed for various lengths of time as textile workers, and found "no instance where there was the slightest reference to changes in the lungs comparable to those noted in the case of those exposed to inorganic dusts."

2. *Cement Dust.*—Thompson and his co-workers[23] found, that after an investigation of health of workers in dusty trades, "the results indicated that the calcium dusts created in manufacturing Portland cement do not predispose workers to tuberculosis nor to pneumonia. The exposed workers experience, however, an abnormal number of attacks of diseases of the upper respiratory tracts even more than exposure to the calcium dusts." Schott[24] came to the conclusion that inhalation of cement dust over a period of years may lead to chronic catarrh, bronchitis, emphysema with changes of the hilus, and that the inhalation of cement dust does not predispose to a primary tuberculosis, that men may work in cement factories with proper sanitary appliances for many years without occupational diseases. Engel[25] considers the cement dust to be harmless. Pancoast and Pendergrass[26] report a roentgenological transformation in the lungs of 20 cement workers out of 25. These changes, however, were of slight nature. Dr. Hack[27], director of the Tuberculosis Hospital in Heidelberg, states that the cement workers enjoy a better state of health than many of the neighboring communities. Kaestle[28] states that the cement coniosis belongs to the benign coniosis. The explanation of a low death rate from tuberculosis and a small amount of fibrosis of the lungs is due to the fact that the dust is soluble in the body fluids, causing only a little damage to the lung tissue. An investigation of a fullers' earth plant has led me to the same conclusion with regard to this dusty occupation as was reached by Thompson and his co-workers in the cement industry.

3. *Coal Dust.*—There is a low rate of tuberculosis among coal miners. Coal dust was thought at one time to offer protection against tuberculosis, but the evidence is not certain. Improved conditions in ventilation of the mines, has removed coal dust to a large extent as a factor in causing pulmonary disease. The individuals work for many years in the mines, the dyspnea increasing with the advance of time, the men usually having a bronchitis, dying in old age of diseases found in people non-industrially

connected. In cases of marked anthracosis only a small amount of silicon dioxide (1.8 mgms. per gram of dried tissue) was found[29].

4. *Silica Dust.*—Silicon dioxide is a common constituent of all our food whether of animal or vegetable origin. It is found in the air we breathe and the water we drink. The Chicago Board of Health reported in 1931 that there was an average fall of siliceous matter of 134.03 tons per square mile per month. In 1932, there was a fall of 129.30 tons, with the smallest amount (63.127 tons) recorded in 1926. The average silicon dioxide content of Lake Michigan water is 3.3 parts per million. Green[30] reports 119 tons of material (containing by chemical analysis 77% ash) per square mile per month was deposited from the atmosphere in a collection station in the down town district of Cleveland, Ohio. If this deposit of 119 tons per square mile per month is typical of all of our large cities, we would think that considerable harm could be done, for we know that the inhalation of this dust causes anthracosis in city dwellers. Any process which uses material containing silicon dioxide or gives off silicon dioxide is a potential source of silicosis. Dusts from quartz, quartzite, flint and sandstone are the most harmful. This is due to their content of silica or silicon dioxide. The finer the dust, the more dangerous. Particles greater than 10 micra in diameter cannot pass through the finer bronchioles. Microscopical examinations of the silica found in the lungs show that 70% of the silicon particles have a diameter less than one micron. When you consider that a micron is one twenty-five thousandth of an inch, the necessity of the removal of such fine particles from the air is imperative. Silica dust is generated in the polishing of mirror glass, the manufacture of grindstone, millstone, in sand blasting, the crushing of stone to make silica flour used in the manufacture of pottery, abrasive soap, in the manufacture of silica brick washing powders, sandpaper, silica paints, mining and quarrying of granite sandstone, and in all forms of mining where the ore is accompanied by a siliceous rock.

Dust Prevention.—Plini, the Elder[31], in his Natural History, speaks of the use of respirators to avoid dust inhalation. A similar device was spoken of by George Bower[32], 1557, who strongly advocated the ventilation of mines. In Altenberg, in Meisen, the men bound loose coverings (bladders) to their faces. "By this means the dust is not carried into the lungs and blood, and does not hurt the eyes." This is one of the earliest records of protection of the men from dust. Later, in 1713, Thomas Benson[33], in England, was granted a patent for a wet method to prevent the dry dust being inhaled by the grinding of flints. The introduction of exhaust fans and a supply of air free from dust to all workers will lessen the dust hazard, and in certain industries, the spray or wet method may be used to lessen the formation of dust. Russell[34], in his studies of workers in dusty trades, states that "when patients had been exposed long enough to develop silicosis and then changed to non-dusty occupations, they did not thus materially lessen their chances of escaping a final tuberculosis complication." A consensus of an opinion is that the quantity of dust in the air should not exceed 5 mgms. or three hundred million particles per cubic meter. It is only the particles less than 10 micra in diameter that are retained in the lung tissue. The larger particles are removed by the ciliated epithelium of the lungs, and it is these smaller particles that are dangerous, causing fibrotic change[35]. The smaller the particles, the more readily they would be acted upon by the fluorides of the blood, and more easily cause fibrosis from the tetrafluoride formed.[36a]

Symptomatology.—In any dusty atmosphere there is an irritation of the mucous membrane of the nose and throat, with sneezing and coughing to remove the inhaled particles. The particles that are retained are attacked by the bronchial secretions which dissolve some of the dust particles. The smaller particles are taken up by the phagocytic action of the macrophages which remove the particles from the alveoli or through the alveolar walls. The cough is usually the first symptom. At first, both are paroxysmal and productive, later is accompanied by a scanty expectoration. Later and often, the outstanding symptom is dyspnea.

As the fibrosis increases and reduces the lung ventilation, this symptom becomes very marked. The sputum may be stained with the kind of dust inhaled, the chest expansion is diminished, the breathing becomes more labored, and may be wheezing or asthmatic. In a later stage, there is pain in the side, which is probably due to an

early pleuritis. There is an absence of fever, night sweats are uncommon, there is little or no loss of flesh. The patient as a rule is pale in appearance. The chest is usually flattened anteriorly. On auscultation the breath sounds are unusually efficient in intensity. In early cases it is extremely difficult to distinguish in the physical examination differences from those noted in tuberculosis, and here we must depend upon radiographic examination for the presence or absence of tuberculous infection. And it is here where the experts differ so much upon whether silicosis caused the tuberculosis, or whether the tuberculosis was present with the silicosis implanted upon it. No method of clinical diagnosis can distinguish between a case of affected fibrosis and one of simple fibrosis. Hemoptysis, loss of strength and gastrointestinal symptoms are pronounced in the more advanced stages. However, when a diagnosis of silicosis is made, the withdrawal of the patient from the dusty atmosphere should suspend any further increase in the pathological condition. Both diseases may be present and the term tuberculosilicosis has been applied to this condition. Cavities have been reported in cases of silicosis without tuberculosis. It may be twenty years before the patient is incapacitated. In some instances, however, death has occurred within a year and a half from the time of exposure to the silicon dust.

Prognosis of Silicosis.—The prognosis depends upon several factors, the time of working at the dusty occupation, percentage and concentration of the silica dust inhaled. A person may work for twenty years or more before giving up work. Many of them would continue to work if economic conditions were such as would enable them to obtain employment. After the age of forty-five years the impairment becomes more noticeable. Men working at hard work in non-dusty trades also show the effects of their work after this age and this must be considered in giving an opinion upon the prognosis. Men after the removal from the dusty occupation may not die for fifteen years later, and a large amount of silica be found in their lungs.[36]

Once a person has silica in his lungs it is there to stay forever, for the lung tissue is never restored to normal, although there may be a quiescence of the inflammation, changes and symptoms. Susceptibility to pneumonia and tuberculosis is increased in all stages of silicosis but chiefly in the last stage. Every case of chronic bronchitis or pneumonia of a workman in a dusty atmosphere may be a potential cause for a suit.

Microscopical sections of the lung tissue after death may, under polarised light examination show "the connective tissue to be laden with siliceous particles and the alveoli to be distended with serous exudate and catarrhal cells."[37] In New Zealand and Tasmania, there is found a high incidence of pneumonia in the mortality returns of quartz-mining districts. Collis[38] concluded that "Pneumonia appears to be predisposed to by the inhalation of those dusts which are associated with an undue prevalence of bronchitis."

Diagnosis.—Under diagnosis, it is absolutely necessary to have a history of the exact occupation and exposure of each workman in the silica-containing dust, to have a complete physical examination with the symptoms, and to have x-ray pictures. "Just as in the case of bronchitis, the connection between the disease and dust inhalation must depend upon an intimate knowledge of the occupation followed, of the exposure to dust, and of the mortality prevalent in that occupation. A correct diagnosis is of importance because, with the known tendency to a fatal termination, every case from its onset, however apparently slight, must be considered serious and treated accordingly. Detection in the sputum of particles of dust known to be associated with pneumonia may assist in diagnosing the occupational sign of the attack."[39] In case of death sections of the lung should be examined for the characteristic fibrotic whorls, although in several cases where the silica content was high in the dried lung, only fibrosis was demonstrated microscopically. The silica content of the dried lung should be reported in every case of death having an occupational history of dusty employment. Too much stress should not be given to occupational history. In one instance a history was given of a man who had worked as a "sand-blaster." The case was ready for trial when the plaintiff was killed in an auto accident. A chemical examination of the lung gave only 1.8 mg. of silicon dioxide per gram of dried tissue which ruled out silicosis. Microscopical examination of sections of the lungs by Drs. Ludwig Hektoen

and Henry C. Sweaney failed to show fibrosis. Here there was no evidence of silicosis yet a suit had been instituted upon a history of exposure.

Compensation.—There are two groups of people who are intensely interested in silicosis: in the first group are the employers who are conducting industries in which there is an exposure to dust; the other group consists of thousands of people who gain their livelihood in these industries. In times of unemployment, a racket develops around the first group. Investigators employed by certain law firms talk to the unemployed who may have worked in sand-blasting, foundry work, sand mining, glass workers, miners in quartz and granite, metal grinders and polishers, and ask them if they know of anyone having the symptoms which have been given above. They then induce the individual to sign a contract and file a suit against his employer on the grounds that a pneumonokoniosis was contracted naming all the dusts that he might have come in contact with.

When cases reach the civil courts, the jurors usually award the plaintiff from twelve to twenty thousand dollars. To correct this condition, pneumonokoniosis should be placed under the Workmen's Compensation Act, or have a Federal Unemployment Bill passed similar to that of the Wagner Bill, where provision could be made for unemployment and insurance benefits. "In the event of an employee being physically or mentally disabled, he shall be entitled to a percentage of the maximum or minimum individual benefits provided for if he shall otherwise be able to qualify under the Bill."[40] The Factory Inspection Act could be amplified, better defined in regard to this hazard, and if the employer lived up to the provisions of the Act, the courts should not hold him liable. Silicosis does not come under the Workmen's Compensation Act in many states. However, in the State of Wisconsin, under the Workmen's Compensation Act, industrial insurance is compulsory. As a result of this enforcement employers have been able to secure industrial insurance even in cases where pneumonokoniosis and silicosis were a hazard.

The Workman's Compensation Act being remedial is to be liberally construed to carry out its purpose of placing the cost of industrial accidents and diseases upon the industry in which they occur as a result of the industry.[41]

The State of New York has recently passed an amendment (No. 2102, March 1, 1935) to the workman's compensation law including silicosis. "Silicosis and other dust diseases—shall be divided into two stages—one which does not cause disability but which indicates that it is hazardous to the employee's health to continue employment under further exposure to inhalation of dust, silica or harmful dusts and[2] the second stage—that causes permanent disability either total or partial, by which the employee is disabled from earning his full wages in the work in which he was employed." In the second stage, compensation shall be paid at the rate of 66⅔% of the average weekly wage—and shall not exceed twenty-five dollars per week nor less than eight dollars per week—further provided that the total period of compensation payable shall not exceed two hundred and sixty weeks."

There should be established in each state having a large amount of dusty industrial work, quarries, and other places where highly siliceous material is handled, a medical board similar to that which was instituted by the Miner's Phthisis Act of 1916 in South Africa. This board should be composed of three physicians, one representing labor, one representing the industrialist, and a third, neutral. The Board should also have a chemist and an engineer, all of whom should have special qualifications in this particular line of work and not be political appointees. This Board could decide whether the industrialist had exercised every precaution possible to protect his men, for with the present arrangement of law suits, whether they be before a county court or a federal court, the jury decides in favor of the sick man. His illness may have antedated his employment by the particular industrial concern, and the jury give a verdict in favor of the plaintiff.

They should, secondly, decide from their examination, the degree of disability and the amount of compensation that should be awarded in case he is found to have respiratory disease, due solely to his employment.

Third, to investigate and decide all claims for the dependents of diseased workmen who have brought suit for compensation, where the workmen had been subjects of silicosis or tuberculosis, due to dusty occupation.

To prevent the employer from being imposed upon, every person seeking employment in these

dusty occupations, should be x-rayed and examined medically before being accepted for work. Second, all employees who are now engaged in these dusty occupations should be x-rayed, and the extent of injury to the lungs noted, and a change of occupation made.

From the foregoing, it can be noted that a workman who has been employed in a dusty trade must prove, first, that the dust to which he had been exposed was capable of causing a bronchitis, tuberculosis, or silicosis; second, that the statistics of the particular industry show that there is a greater probability of respiratory diseases amongst workmen over that of people of the same age, and the housing conditions in the same locality; third, to show that the machines, apparatus or processes that threw off dust, and that the dust was of such a nature and size as to be capable of having caused the respiratory disease in question; fourth, that the machinery, processes or apparatus could have been protected by exhausts, ventilation or other protective mechanisms; fifth, that the employee on account of the peculiar nature of his employment was exposed to the dust from the machinery, process or apparatus, (here, a gravimetric determination of the amount of dust per cubic foot and the dust count made at various times to determine whether it was harmful, is imperative);[42] sixth, that the workman was subjected long enough to the dust arising from the machinery, process or apparatus to produce, cause, aggravate, or increase a respiratory disease already present. Here it is essential to know the size, the amount of dust particles per cubic foot, solubility, and other characteristics of the dust. seventh, it is very important to show that the man was in good health as shown by previous medical examinations by entirely qualified practitioners, including physical examination, x-ray pictures, and laboratory work.

CONCLUSION

1. Pneumonokoniosis, (silicosis, siderosis, etc.) is not a new disease but is being capitalized by certain doctors and lawyers for financial gain.

2. Silicosis is caused by the long continued inhalation of dusts containing silicon dioxide in concentrations of over 10,000,000 particles per cubic foot of air.

3. For their own protection, employers should provide:

a. Regular inspection of the plants to improve working conditions as regard to dust elimination.

b. Examination of men before accepting them for employment.

c. Frequent inspections of workers in order to pick out those who are in the first stages of the disease and,

d. If subsequent examinations show the presence of the disease, give the men other employment or pension them off according to their disability.

4. Doctors should be educated as to what degree of disability calls for compensation.

5. Brains and money should be pooled to provide a central office to give out information to fight the racket for the protection of industry. and to better the working conditions for the preservation of the health of the worker.

6. There should be a proper compensation law. It is easier to try cases of silicosis before an industrial commissioner as he has the opportunity to hear more cases and would understand the testimony better than a jury in a common law suit.

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FRACTURES OF THE TRANSVERSE PROCESSES OF THE LUMBAR VERTEBRAE

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Fractures of the bodies of the lower dorsal and lumbar vertebrae are not uncommon and are usually the result of direct violence. Howard Doub[1] states that 40% of all spine fractures are confined to the lower dorsal and upper lumbar region. Usually these fractures are due to violent compression and fractures of the transverse processes may accompany these crushing injuries of the bodies of the vertebrae or may be independent of such injuries; such fractures of the transverse processes due to direct violence also show injuries to the soft tissues, the skin, subcutaneous tissues and the underlying muscles.

There is a type of injury, however, that involves the transverse processes alone that is not due to direct violence but is due to muscular exertion. Doub (ibid.) has found such fractures of the transverse process where the signs of injury were so slight that fracture was not considered and the common diagnosis of "back strain" was made.

Wilmoth[2] reports a series of seventeen such cases that were the result of forced hyperextension of the spine or sudden, extreme muscular exertion. Such cases are frequently not recognized because the history of so slight a trauma does not seem to justify a Roentgen examination.

One may suspect fractures of the transverse processes or even chip fractures of the bodies of the vetrebrae from a history of sudden, extreme muscular action such as severe hyperextension or twisting in an attempt to save oneself from a fall. Wilmoth (ibid.) says that following such a severe hyperextension or twisting the symptoms are acute pain, definite point of tenderness in the lumbar region, muscle rigidity and limitation of motion. These cases do not respond to ordinary treatment such as heat, massage, diathermy, etc., and it is only when a more thorough examination is made and Roentgenograms taken, that the fracture of the transverse process is discovered.

In fact, Kerby[3] states that fractures of the transverse processes are more often due to indirect violence or extreme muscular action than they are to direct blows or injuries to the spine and limitation of motion and definite point of tenderness should make the physician suspicious and ask for Roentgenograms—both anterioposterior and lateral.

Trostler[4] has described nineteen cases of fracture of the transverse processes in which the symptoms simulated those of kidney stone. All of these cases gave a history of a severe trauma usually by direct violence to the lumbar region three to twenty-five years previously but there were a number of the cases in which the injuries had been recent. In five of these cases the fractured transverse process was removed with complete relief to the patient.

In view of these findings it may be well to pay more attention to the lumbar vertebrae in cases with symptoms referable to the kidney.

Schiessel[5] has reported on twenty-three cases in which the only symptoms were pain and restricted motion with tenderness on pressure in the lumbar region.

Mac Kinnon,[6] reviewing fifty cases of fracture and dislocation of the spine, has found that even slight trauma may cause fracture or dislocation

Read before Joint Meeting of Sections on Radiology and Surgery, Illinois State Medical Society, May 21, 1935.

and that physical examination is not always certain and in his opinion x-ray examination is always indicated in such cases.

Diemer[7] makes the statement that fractures of transverse processes are usually unilateral and multiple and that the distal fragments without exception are displaced downward due to muscle pull. In his case there was compression of the body of the fourth lumbar vertebra and also fracture of the left transverse process of the fourth lumbar with upward displacement of the distal fragment. However, on more careful examination it was found that the fragment really came from the third lumbar vertebra and was displaced downward. In the examination of such films it is important to remember this and to differentiate, particularly in the upper part of the lumbar spine, such fractures from rudimentary ribs. This is very important.

The Roentgenological diagnosis of injuries to the lumbar spine is not easy by any means. Most authors agree that 20 to 25% of lumbar spines show developmental abnormalties and Cushway[8] in examining 931 apparently normal men, found 510 anomalies in 414 cases. In 84 of these there was an extra rib and in 50 there was sacralization of the transverse processes of the fifth lumbar vertebra and an extra lumbar vertebra was found in 46 cases. Not a single one of these men had lost any time from his work. On the other hand, Duncan,[9] in describing the significance of radiologic findings in low back pain, says "In reviewing these cases I feel more than ever that an attempt to prove from Roentgenograms alone whether disability does or does not exist is an extremely pernicious practice. Not all of these cases with negative x-rays are malingerers."

Because of all these anomalies and variations one must be cautious in his x-ray diagnosis of injuries to the lumbar spine. First there must be a history but not necessarily a history of direct violence, secondly physical signs—the principal signs being (a) point of tenderness, (b) limitation of motion and (c) pain and finally, (d) positive x-ray findings.

I quite agree with Duncan that diagnosis on the basis of x-rays alone is dangerous practice. This is well illustrated by the following case.

Richard G., who was employed as a laborer in a zinc smelter where his duties were to charge the retorts with zinc ore and coal and set them in the furnaces (these retorts weigh in the neighborhood of two hundred pounds) stated that while lifting some heavy material he had a sudden pain in his lower back, which pain persisted for about a month, gradually cleared up, and he went back to work. He states that he had no further pain in his back for about a year when the same thing occurred again as the result of lifting a metal dump car back on to its track and this time the pain was not confined to the lumbar region but radiated down the back of the leg and was accompanied by numbness of the foot and calf extending up as high as the knee. It was later brought out in the hearing before the arbitrator for the Industrial Commission that he had consulted, several months previous to the second attack of pain in the back, a chiropractor who gave him "adjustments" for several months and in discussing his condition with the patient made the suggestion that he "must have had an injury to his back."

X-rays were taken and revealed what was considered to be an old fracture of the transverse process of the fifth lumbar (this man had six fully developed lumbar vertebrae) on the left side and a fracture of the transverse process of the first lumbar vertebra on the right side. He employed an attorney to prosecute his case against his employer, suing for four hundred and sixteen weeks temporary total disability, at $16.00 a week and also $16.00 a week for complete and permanent disability, including a pension for life.

It was subsequently brought out in the hearing that the dump car which was used to carry molten zinc was so heavy that it would have been practically impossible for one man to lift it. One of the members of his working gang stated that the dump car weighed approximately one thousand pounds and that it was difficult for even two men to lift one end back onto the track. It was also brought out at the hearing that no one saw him lift the car or that he had complained of injury on the given date. It seemed evident that the testimony as given was probably inspired by his desire for some easy money at the expense of his employer.

A radiograph, an anterio-posterior of the lumbar spine, reveals six clearly defined lumbar vertebrae. There is an anomaly of the transverse process (or an old fracture) of the fifth lumbar vertebra on the left side. There is certainly no evidence of a recent fracture as a well defined ragged fracture line cannot be made out on the film, nor is there any displacement of the distal fragment downwards. There is, also a definite "fragmentation" of the transverse process of the first lumbar vertebra on the *right* side. This had also been diagnosed as a fracture. I wish to point out, however that the edges of both the distal and proximal fragments are smooth in outline and that the distal fragment is displaced *upward* and for this latter reason I believe it is not a fracture fragment but rather an accessory lumbar rib.

Lateral view of the lumbar spine and sacrum did not reveal any evidences of fracture of the bodies of the vertebrae but clearly show the presence of six lumbar vertebrae.

In this case, involving such a large sum of money, a

mistake in diagnosis would have been extremely expensive.

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THE TREATMENT OF VERTEBRAL FRACTURE WITH SECONDARY PARALYSIS

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Spastic paralysis of the extremities due to a compression myelitis, in which an interval has elapsed between the time of injury and the development of the paralysis, can be cured by hyperextension. To demonstrate this I wish to report three cases, one with a fracture dislocation in the cervical area, and one with a compression fracture of the tenth dorsal vertebra; a third case is briefly cited to demonstrate the importance of correct technique in applying hyperextension to the spine.

The first patient, H. R., a young woman 30 years of age, fell from a first story window on December 25, 1931. She was taken to a hospital where she remained unconscious until the following morning. Her condition was suggestive of skull injury; the x-ray, however, showed no skull fracture. Five days later she was dismissed with a diagnosis of sprained neck.

When first seen on March 9, 1932, the patient gave a history of intense pain in the shoulder, which had persisted from the time of the accident; of tonic contracture and difficulty in using the right arm and hand; of a fixed flexion contraction of the left arm; and uncertainty of gait—all of which symptoms had become progressively worse.

Examination revealed a spastic paralysis of both upper and lower extremities, with increased ankle and knee jerks, and marked paresthesia. The roentgenograms taken on March 10, 1932, showed a complete anterior dislocation of the fifth cervical and a small fragment chipped off the anterior aspect of the sixth cervical vertebra. A diagnosis of a compression myelitis with a fracture dislocation of the fifth cervical area was established. Immediate bed rest with hyperextension was advised. The patient returned to the hospital to which she had previously been taken, for admittance. She was there advised to have an immediate laminectomy; this she refused and she was thereupon dismissed. She then returned home and went to bed; hyperextension was carried out under the supervision of a visiting nurse. A pillow was placed under the back of the neck and the head kept as quiet as possible. The spasticity in the lower extremities gradually decreased. After about three weeks of treatment she again presented herself at the Clinic. The paralysis was much improved although she still complained of some slight pain in the cervical region, referred to the shoulder and arm. A modified Schantz collar was applied (several layers of sheet-wadding drawn snugly about the neck by means of a three inch bandage; then more sheet-wadding and more bandage until a firm elastic support is obtained). The support acts to hold the cervical column in hyperextension, relieves weight-bearing and promotes immobility; it is easily applied. Each day the collar was tightened by the nurse and more bandage applied. Immediate relief from pain was obtained upon application of the collar.

The patient returned for examination on July 30, 1932, at which time the paralysis had completely disappeared. She was able to return to work as a telephone operator after having worn the Schantz bandage for two and a half months. On January 4, 1934, she had several dental extractions done without any deleterious effect. Examination at that time showed no evidence of myelitis; normal reflexes were present. When last seen on April 1, 1935, the roentgenologist reported an ancient anterior subluxation of the fifth cervical vertebra upon the sixth, with apparently a firm collar of bony union. She had been working steadily without difficulty, and was then six months pregnant.

The second case, a woman 65 years of age, gave a history of striking her head against the top of the car during an automobile accident eight years previous to her admission to the hospital. After two years, during which time she paid little attention to the condition of her back, she began to complain of a pain in the back and a tight feeling around the waist. The laboratory findings, including Wassermann test, were negative. A hysterectomy had been performed a year following the accident, that is, five years previous to our first examination; neither the diagnosis nor the pathological findings were definitely ascertained. Following the operation the pain in the back continued and became increasingly severe; for a time she was treated for pleurisy and three years prior to her admission to the hospital she was subjected to a cholecystectomy, without relief of her complaint. The pain in the back continued to increase in severity and finally paralysis developed.

Examination showed a spastic paralysis of both lower extremities; she was unable to use her ankles or bend her knees; she was not able to sit up or rise from the the lying position; abdominal reflex was absent; patellar clonus present. Neurological examination resulted in a diagnosis of compression myelitis at the level of the tenth dorsal vertebra; in addition, the patient had a very definite kyphosis. The pain was so severe that morphine was necessary to control it. The neurologist suggested that a laminectomy be performed but agreed

Read before Section on Radiology, Illinois State Medical Society, Rockford, May 21, 1935.

to let us try hyperextension first in an effort to relieve her pain.

On account of the intensity of her pain the patient was moved with difficulty. She was taken to the operating-room where a general anesthetic was given and hyperextension applied. A model for a plaster bed was made. On the second day she stated that she had less pain than she had had for four months; on the third day the clonus had quieted and on the fifth day the paralysis began to improve. Improvement was rapid for a period of three weeks; the clonus subsided so that we were able to put on a posterior splint to support the ankle and prevent the foot from dropping. Massage was started and gradually we obtained a definite recovery in the way of active motion. The muscles, however, were very weak. The patient had been in bed before the gall-bladder operation and continuously since that time, and was anxious to get up and about. To facilitate matters a body cast was applied; the anterior part of the cast was used as a bed to retain hyperextension. Two days later a fusion operation was performed and permanent fixation secured. On the ninth day the stitches were removed and the patient was put back on the hyperextension plaster bed. Five weeks after operation she was put into a cast and permitted to return home. She was able to sit up; the time out of bed was gradually increased; the cast was removed and she was put into a corset because of the warm weather. Two and one-half months after the operation she was able to walk with crutches; she returned to her home in Ohio and continued to gain until she was able to walk with a little support, using a cane. However, she developed pneumonia which again delayed her for several months because of marked weakness, but she gradually recovered and got along very well, without pain and was able to do housework for a year and a half, at which time she died of cerebral hemorrhage.

The third case, briefly, was a man 42 years of age, who had sustained a fracture of the first lumbar vertebra as a result of a fall. The compressed vertebra was recognized almost immediately and treatment instituted at once. He was hospitalized for three months; wore a cast for six months, and a Taylor brace for two and a half years. He complained of pain in the back, referred over the abdomen and down the thighs, which in spite of treatment was becoming increasingly severe, and an operation had been advised.

When first seen examination showed a rounded kyphosis and a prominence over the first lumbar vertebra; the muscle had atrophied; motion caused pain and muscle spasm. He was totally disabled and was receiving compensation insurance.

Immediate alleviation of pain was obtained by means of hyperextension; a cast was then applied on the upright frame. When complete hyperextension was obtained a combination Hibbs graft with three large tibial grafts was done to assure retention of the new position.

Convalescence was uneventful and the patient has now been entirely well for two years; does a full day's work lifting ice-cream freezers and cases of beer without difficulty. His compensation ended three months after the operation was performed.

This case is cited principally to add emphasis to the importance of technically executing the principle of hyperextension in fractures of the spine.

Conclusion: These three cases demonstrate the fact that paralysis which has developed following an injury to the spine, even though severe and of long standing, can be cured and the associated pain completely relieved by hyperextension with or without operation. Therefore, I do not hesitate to recommend hyperextension treatment, with or without operation, in all cases of paralysis due to cord lesions, in which an interval has elapsed between the original spinal injury and development of the paralysis.

DISCUSSION

Edward L. Jenkinson (Chicago): The essayists covered the subject so well I do not know what is left for me to say. I might sound a word of warning for the radiologists that it is essential to show these lesions which Dr. Chandler so beautifully described. Having done some of this work with him, I know how difficult it is to bring out some of these lesions. Any examination where you do not do a straight lateral is not complete. Also in a number of cases, a good deal of information can be added if films are taken in the right and left oblique positions.

I hesitate to disagree with my preceptor, Dr. Case. I am usually wrong when I do, but regarding Kümmell's Disease, in a few cases I have had an opportunity to follow, I rather disagree with him in some particulars. One is the case of a doctor who while attending one of the meetings one night started to sit in a chair which had been pushed away. He fell upon his buttocks. We didn't examine him originally, but he was examined and they obtained excellent films of the dorsal spine. We saw them afterward and it was impossible to see any fracture. In the course of events, he kept on having pain although he was told he had no fracture. He kept complaining of pain in the spine. He was examined a month later. At that time, the vertebral body was completely compressed. I am wondering if he did not have a microscopic fracture at the time of injury, and I am wondering if he did not have some disturbance in the anterior spinal artery which probably caused the fragmentation and collapse of the vertebra.

Dr. Chandler: I shall take but a minute or two to discuss certain phases of the extensive presentation which Dr. Case has made in demonstration of injury to the back. The original paper which Dr. Easton was to present was in relation to treatment of injuries to the back. From the x-ray angle, we are usually interested in fractures of the anterior part of the vertebra. We should forget that there is a posterior part.

In going into some of the fractures we see during

the first few days, I am struck with the multiplicity of lesions we see on uncovering the lamina. We are dealing not only with fractures of the body; we are dealing with fractures of the posterior structure as well. The most sensitive structures of the vertebra and of the spine are the synovial tissues lining the lateral joints! These are true joints. The surfaces are covered with hyaline cartilage; the joints lined with synovia, capsular ligaments and reenforcing ligaments behind. They are heir to all the pathological changes of joints in general. Synovitis of traumatic or infectious origin is one of the most common disabilities we encounter in the entire back.

In recent years, a great deal of attention has been given to the pad that separates the two vertebrae. The intervertebral disk is divided into a rigid portion of a fibrous portion and soft yielding portion like the honey-centered golf ball, a beautiful piece of mechanism, a shock absorber.

These injuries may cause extrusion of that semi-elastic material in any or all directions. It may go into the vertebral body itself, may come out through the ligaments laterally, anteriorly, and in one case I had occasion to see recently, it protruded posteriorly, resulting in a transverse myelitis. There is the possibility of that which probably has not been brought to the attention of all of you, the nucleus pulposus, this little elastic center which occupies the center of the disk.

Reference was made to the developmental anomalies. The spine is loaded with every conceivable anomaly. It is interesting to note that as we come up the mammalian scale to man we find that the pelvis is advancing toward the head. Except for the orang-outang, the attachment of the pelvis in humans is closest to the head of all mammals. It is apparent that nature is experimenting, trying to find the proper level of attachment when we have changed from the horizontal to the vertical position. It is interesting to note that the number of vertebral segments in the cervical spine is constant in almost all mammals, the giraffe to the whale. We find seven vertebral segments. It is rather unusual to find eight in humans or eight in any of the mammals. It is probably an experiment of nature trying to accommodate our pelvis to the upright position that accounts for most of these low back anomalies.

Dr. Case: I have nothing to say except to call your attention to the fact that my friend, Dr. Jenkinson, agreed with me. He admitted there might have been a fracture. I am sure along with these fractures, of which I am not speaking with any personal authority, merely giving the consensus of opinion as from the literature of today, these Kümmell's diseases do have a basis of fracture which may not have been demonstrated. I am not sure I could demonstrate every fracture brought to me today, even with the experience we have attained and with the apparatus we have. These fractures very often involve posterior elements. Quite likely there is a disturbance of circulation and some neurotropic change. As to the emphasis on the condition of the patient, Dr. Jenkinson is perfectly right. We must get accurate technical work in order to demonstrate the spines properly, especially in the lower back regions.

MEDICAL PROBLEMS OF TODAY AND THE FUTURE

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The topic assigned to me is "Medical Problems of Today and the Future." I shall not undertake to forecast the problems of medicine in the future. My mind is not of the kind that is willing to try to project into the far distant future and to formulate predictions as to what is going to happen. Within the last five years, I have seen things happen which I don't believe anybody in this house thought could happen in America, so I have long since gotten over the habit of attempting to predict the future.

Of course, medicine is confronted with a great many problems. It always has been and always will be confronted with important problems. If it were not, it would mean stagnation. Many of the problems with which we are very much concerned today, I believe, are not in any sense new problems. They are as old as medicine is old. Many of them, in my humble opinion, will be worked out by the processes of evolution. No matter what we do or do not do, some of them are probably of such nature that evolution itself will finally determine their outcome. There are those we have created for ourselves and others, many of which are comparatively new in a certain sense, that have been created for us by groups and agencies entirely outside the medical profession, over which we have no control and over which we probably will not have much control in the future. It may be that all of these problems are in the nature of those which will be solved by evolution, because I suppose it is a part of evolution for man to continue to show certain apish tendencies until the processes of evolution are complete.

To my mind, one of the most important and pressing problems of the medical profession today is that involved in the need for better organization. Of course, it thrills me when I hear my friend, Dr. Parker, tell us that 80 per cent.

Address before Secretaries' Conference, Annual Meeting of Illinois State Medical Society, at Rockford, May 21, 1935.

of the eligible physicians in Iowa are members of the Iowa State Medical Society. There ought to be 100 per cent. of the *eligible* members of the profession of Iowa in that society, and there ought not to be one-tenth of one per cent. of those who are not truly eligible for membership, who do not believe in the ideals of medicine and in the ethical rules which the organized medical profession has adopted and must maintain if the professional status of medicine is to be preserved.

The first medical society organized in this country, in so far as I have been able to ascertain, was organized on the initiative of an old physician in the early colonial days in New England. He wrote letters, transmitted by various and sundry processes to all physicians whose names and locations he could find in the section in which he lived, asking them to come together "for the purpose of conversation," pointing out that the need for conversation among physicians was a need of the utmost importance. In my opinion, the need for "conversation" among physicians is just as great today and even far greater than it was in those early days in the history of this country. The problems of those men and for many years after them, were comparatively simple, involving the simplest sort of delivery of such medical service as was possible to deliver under the existing knowledge of the times. Today we have complications created by governments, social complexities, conditions of medical education and licensure, health administration and many others. If I could know what the government is going to do, what our universities are going to do, what industry and commerce are going to do, what the medical profession itself is going to do in the way of perfecting its own organization and in the affairs of medicine in its relations to the public, then I would be willing to hazard a guess as to the nature of our problems of the future.

We need more compact and more efficient organization. I am delighted to bear witness today to the fact that great progress is being made toward the perfection of organization in the medical profession in many places. There is no question but that the Illinois State Medical Society is a far stronger body today than it was twenty years ago, ten years ago, five years ago, or even three years ago. With very few exceptions, the state medical associations all over this country are far stronger than they were five years ago. I think that is true to a less extent of our component county medical societies. Unfortunately we have far more county societies than ought to exist, because there are something like ten times as many counties in the United States as should be permitted to exist. In Illinois, we have 102 counties where twenty-five would be sufficient. In the state from which I came, with a population of approximately 3,100,000, there are 95 counties, one of them with a total population of 2,700 people, and one physician. Whether under some system of insurance or under any other system, medical service in that county will hardly be brought to a high plane. The county ought to be abolished and be made a part of other counties that would be able to provide transportation facilities in that territory which would make it possible for those people to get at least fairly good medical service.

While I believe the need for better organization is very great, I am equally convinced that we face a very dangerous problem in the fact that in a certain sense the medical profession is over organized. If I were to tell you how many medical societies of one kind or another there are in the United States, I know you would be astounded at my statement and I doubt very much that you would believe me. Since I don't want to be disbelieved, I am not going to attempt to tell you. But the simple fact is that we have conferences and institutes and academies and colleges and clubs and associations and societies and congresses until there is no end of them. Don't misunderstand me. I don't for one moment intend to give the impression I don't believe that some of these organizations are not filling a very useful purpose. I do. But I also believe, and I not only believe it, but am absolutely and unreservedly convinced that there is grave danger in over organization. There is danger in that it brings about a dissipation of fealty. There is danger in that it produces duplication of effort. There is danger in that it encourages propaganda of a destructive kind. There is danger in that it brings about a confusion in the public mind and especially in the minds of members of legislative bodies.

It is a very embarrassing thing to go to a member of Congress, as I have done on more than one occasion, or to a member of a state legislature, to try to promote the policies of the Ameri-

can Medical Association as defined by its House of Delegates composed of elected delegates representing the entire medical profession of this country as it is organized, only to be confronted with a statement of an opposite policy that has been adopted by some other organization whose members are first members of our component county societies, our state associations, and the American Medical Association. I know that happens because it has happened. I should not be at all surprised if it has happened in the experiences of my friend, Dr. Neal, who has served this society in a very efficient manner and has, at the same time, served the public.

I had occasion not long ago to try to ascertain just how many meetings of a medical nature are held in a number of population centers in this country. I found that in a city having a population of less than 300,000 there were on an average of 29 medical meetings a week and one meeting of the county medical society a month. I found in a city of a little less than 400,000 population there were 42 medical meetings a week and the county society, if it was lucky, got one meeting a month. I found in some places the staff meetings of hospitals had been substituted for the scientific meetings of the county medical society, and by that procedure many of the members of the county society were cut off from all participation in scientific work in those particular counties. That, in my judgment, is a situation that is dangerous to organized medicine and one that ought to be corrected.

I think this question of organization is one that needs the careful, prayerful consideration of every man who is interested in medicine for its own sake and who wishes to see its real destiny fulfilled. There can be but one basic organization of the practitioners of medicine in any country. In our own country, I have no hesitation in saying, that one basic organization is that composed of the component county medical societies, the constituent state medical associations and the American Medical Association. It is the only organization that is open or that can ever be open to all reputable, duly, legally registered physicians. There must be one organization that is open to all reputable physicians and that organization deserves the active, the persistent and the eternal support of every man who believes in scientific medicine and who is interested in medicine for its own sake and for what it can do for mankind.

There should be one voice to speak in the United States for the organized profession of this country. There should be one voice to speak in the individual state for the organized profession of that state, and there should be one voice to speak in the individual county for the organized profession in that county. That voice at the bottom should speak in keeping with the pronouncements of the delegated body chosen by its own members to represent the organized profession of the nation.

There are other problems which are confronting medicine. I am going to touch on a very few of them and I hope you will not feel I am trying to preach to you, for I am not. I am going to try to tell you some things I know are true because of what comes over my desk one day after another, and because of what laymen say who come to discuss their own problems in their relation to medicine.

A young man walked into my office not long ago. It was apparent to me the moment he walked in the door that he was highly indignant about something. He walked over to my desk and laid down upon it what I found to be a statement which had been sent to him by a physician. This young man said, "I have come here to find out what the American Medical Association is going to do about this." I picked up the statement, looked at it, and found it was a doctor's bill for $259 for an operation for appendicitis and for three calls that had been made before the operation. The young man said, "I make exactly $80 a month. I have a wife and three children and my mother to take care of. I have struggled to keep off 'relief.' I went to this doctor when my child became ill and told him my financial condition, showed him my bank account, told him what I had and asked him to please tell me what he was going to charge me and told him that I couldn't pay at once and would have to take a long time to pay it." The doctor told him not to worry, it would be "all right." Two or three days after he operated, he sent the young man a bill for $259, charging three dollars for each of the calls made before the operation and wrote on the bottom, "This bill is past due. Call and make immediate arrangements for payment."

I hesitate to talk about these things even in a

group like this, but I am convinced after thinking it over for some time, that the day has arrived when we must talk about them. I know from what men in high positions say to me that they feel the actions of men like the one to whom I referred and the men in the profession who are guilty of other reprehensible actions represent the attitude of the entire medical profession. Within a week, I had a gentleman of high rank in public affairs tell me of an instance similar to that which I have just recited to you. He said, in so many words, that that one instance had convinced him the medical profession today is without any humaneness, that its idealism had been lost, that it had no concern other than what it could get out of the public. It gave me pause when an intelligent citizen, whose name is widely known, told me that he considered this one incident that came under his observation as a true reflection of the attitude of the entire medical profession.

Why have I brought this to you? Because I know better than anybody knows that it is a minor element in the medical profession who is guilty of forgetting the ideals of medicine. I know better than anybody knows that it is the minor element in the medical profession who exhibit disregard for the principles of medical ethics. But I know also that the fact these men are permitted to get away with reprehensible acts reflect unduly and disastrously on the entire medical profession. I can present strong evidence to support my convictions. It is my humble opinion that a member of a medical society should not be permitted to engage in reprehensible practices that bring discredit on all physicians and poison the public mind. The organized medical profession should take these things in hand. I don't want to wash dirty linen in public, but I do believe the medical society can, through its duly appointed official body, its board of censors, its committee of public relations, or committee on ethical relations, take the individual man who has reflected unduly on the medical profession in hand and get him to see his duty to the profession and to the public. If they cannot get him to see it, then put him without the pale of organized medicine.

I was very much interested in Dr. Crowell's paper and some of the things he discussed. Of course, everybody now is interested in what is being called state medicine and sickness insurance, and more particularly in compulsory sickness insurance. We have recently had an example of what happens to the medical profession when it attempts to control a movement which, by its very nature, will almost inevitably be controlled politically.

One state medical association within two weeks after the American Medical Association had reaffirmed its opposition to compulsory sickness insurance in any form whatsoever, at a special meeting of the House of Delegates, approved the principle of compulsory state insurance and announced its readiness to cooperate with a committee of the Senate in the preparation of a bill to establish a system of compulsory sickness insurance in its own state. The medical society, through its committee, undertook to include proper safeguards in the proposed law by writing into it some of the ten principles that were pronounced by the American Medical Association and by setting up other safeguards in various places in the bill. Within a short time after the bill was submitted to the legislature and the politicians got hold of it, all semblance of medical control was eliminated.

We must consider the practicalities in these situations. The test of truth is experience. There is only one teacher and his name is Experience. If we don't learn by experience, we will never learn. What happened in the state above referred to is exactly what will happen anywhere where an attempt is made to legislate a system of sickness insurance. What do you know of that is supported by taxation that is not politically dominated? What do you know of that can be ruined more quickly and more completely than scientific medicine by any system that involves political domination? I am in favor of encouraging county medical societies to undertake the promotion of plans that will extend the service of medicine and make it available to everybody in every social status in so far as that can be done, but I plead with you, in case it is your purpose to attemp to promote any such plan as those which have been referred to here this morning, that you will not only keep in mind the idealistic considerations involved but that you also give the most careful thought and consideration to the practical questions involved.

Another of our state associations, acting under the most worthy impulses and with the most

worthy motives, has recently incorporated itself as a separate body for the purpose of perfecting a plan for providing medical service to the low income group. It drew up its own plans. It is my humble opinion that the state organization, by organizing a group entirely independent of the state association, has probably destroyed all possibility for maintaining the control by organized medicine in the plan it proposes to operate. Within a few days after they recorded the charter of their organization in the state capital, a purely commercialistic concern, took this charter, copied it and filed it as its own charter. The commercialistic organization without professional inhibitions will probably get far more patronage than the worthy organization that is supposed to be under the control of the organized profession in the state.

I have exactly the same feeling about the groups whose schemes are being started in various places and referred to in very fine fashion by Dr. Crowell. I doubt that anybody knows what a real dependable, actuarial basis would be for the operation of these schemes. I am not attempting to discourage medical society plans. I am pleading for careful consideration before any of them are put into operation. There is one fundamental fact that must never be lost sight of, and that is, the world over, voluntary insurance has invariably been the forerunner of compulsory sickness insurance. That is why it is necessary that there shall be the most complete and careful consideration of the practicalities in these situations. I am convinced in my own mind, and I am offering my own opinions for whatever you may think they are worth, that in some instances the operation of these so-called group hospital schemes are accomplishing purposes that are not at all desirable. They are teaching the people to believe that the best medical and hospital service can be rendered for a nominal sum and that is not so. It never was so and never will be so. Others, I believe, may be keeping unworthy institutions alive that ought to be permitted to die and that would die if they were not getting support through these artificial plans.

I am informed that in some places where medical service plans have been established two things have developed that are very disconcerting. One is that the demand for medical service by those who have paid the nominal sums that admit them into membership has increased much more rapidly than the membership of the bureaus has increased. That is an important practicality, my friend, that you must keep in mind. It means that people, having paid something, even though it be a nominal sum, will do exactly what they have done the world over—make demands for service that is not needed. The other thing, which I more dislike to mention, is that a certain element of the profession has exhibited a tendency to give more service than is needed, and thereby to increase their ratio of the pot. Those are practicalities that must be kept in mind and must be guarded against. So I hope that care will be taken to see to it that any plan that any county society wants to undertake is put on a sound actuarial basis in the beginning, if that can be done. If you don't do it in the beginning, you will have trouble later and will encourage the development of purely commercialistic schemes that will destroy the very worthy purposes you have in mind.

Even in spite of what I have said, I am strongly convinced there is great need for our medical socities to go forward in the development of plans designed to extend the services of medicine to everybody who is in need of such service. But I also believe, at the same time, that the fundamental values of medicine are really the important consideration in all of these matters, and that whenever we promote any scheme that will in any way tend to undermine or destroy the fundamental values of medicine, both medicine and the public will suffer deplorable injury.

I spent the night one time in the mountains with an old mountaineer who was the only man living there for miles around. He was very hospitable, took me in, took care of my horse, offered me some food I couldn't eat, I am sorry to say, and entertained me with the most delightful conversation after I got him started. Before he started, he found out everything I knew and a lot of things I thought I knew which he knew were not so. He sized me up from the start to finish before he ventured a remark of any sort. I found out early in the conversation that the old man could neither read nor write. As he went along in his observations, I found he never said anything unless he could say something really intelligent. I was much impressed with

the intelligence he exhibited and said, "Mr.——, it seems to me you must have done a good deal of thinking in your life."

He said, "Doc, I have lived here all my life, was borned here. In the season I worked in my crop and in the off season I worked in the timber. Any fool can follow a plow without thinking about it and any fool can cut a cross tie without thinking about it. What else have I had to do but think?"

My friends, from what I hear from some of the professional associates, there are many doctors in the country who have a lot of time to think. My opinion is this is the time when good straight thinking is needed more than ever before in the history of medicine. The result of that thinking should be made available to the organized medical profession, and through the organized medical profession made available to all of medicine and to all the people. But in your thinking, start not with purely economic considerations, not with purely materialistic considerations, but start with the fundamental values of medicine. Some of you have heard me tell the story about a fellow in East Tennessee who got lost in the mountains. He wandered around and finally came to a mountaineer's cabin. An old fellow was sitting in a cane bottom chair on the porch, with an old ten gallon hat pulled over his eyes, taking a nap. The traveler called to him and the old man came down to see what he wanted. He said, "I want to know how I can get to Knoxville from here." The old mountaineer thought a minute and said, "Well you go up this here trail, and at the first gulch you come to at the right you go down the gulch about three miles and turn to the right." He got to thinking about how rough that so-called road was and said, "No, that won't do. Go over here about a mile and one-half and take the first gulch to the left and go about two miles and turn to the left." He recalled that was also rough and again directed the traveler a third way, took that back, and said, "Look here, Mister, if I was you and was going to Knoxville, I wouldn't start from here."

My plea is that in your thinking about all these things you are constantly reading about and talked to about, start from the right place —start with the fundamental values of medicine. Don't ever lose sight of the fact that the work of medicine can be done only by a qualified, humane, idealistic profession. I have put the emphasis on *profession*. Don't overlook many of the influences that are persistently at work today, including some of our so-called philanthropies,—and the perils of philanthropy are very real—whose whole tendency is to create conditions that will pull medicine down from the status of a profession. There is nothing that will retard scientific progress and destroy the possibility of the people receiving good service more completely than demotion of medical practice from a truly professional status.

COMPLICATIONS OF DIABETES MELLITUS

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Diabetes mellitus is associated with certain complications so frequently that they must be considered as in some way directly related to the diabetes. These complications are coma, infections, including pulmonary tuberculosis, gangrene, arteriosclerosis and heart disease. Other complications also occur which are not characteristically related to the diabetes. We considered the subject of sufficient interest to warrant a survey of the cause of death in the Cook County Hospital diabetics during the year 1933. In the year 1933 there were 600 cases of diabetes mellitus discharged from the Cook County Hospital. Of this group there were 130 deaths. Of these deaths the greatest number occurred between the ages of 50 and 70. In the various decades the following number of deaths occurred:

1st decade	1
2nd decade	5
3rd decade	4
4th decade	11
5th decade	25
6th decade	31
7th decade	34
8th decade	18
9th decade	1

Thus the greatest number of deaths occurred in the older groups. This fact deserves further consideration. Diabetes mellitus may occur at any age, but 60% of all cases begin after 40; 51 is the most frequent age of onset. Thus, the majority of diabetics are from 40 to 80 years of age. Statistics definitely show that there are many more people living to this age now than

Read before Section on Medicine, Illinois State Medical Society, May 22, 1935, at Rockford.

formerly. In 1850 only 8.9% of the population were over the age of 50, while in 1930, 17% of the population were over 50. This is probably due to many factors, including control of infectious diseases and better standards of living. From a diabetic standpoint, there are also more diabetics who, due to proper control of their diabetes and proper insulin therapy, are living longer and reaching the older age group. Therefore, there are more old people, more old diabetics, and we would naturally expect to find the deaths occurring in the older group.

In considering the cause of death of these diabetics, and realizing that the majority of them die after the age of 40, we expect to find complications of the type also found in the non-diabetic population of this age. Such complications are arteriosclerosis, hypertension, nephritis and heart disease. Prior to 1922, the date of discovery of insulin, the younger diabetics all died within a few years. Diabetes in children was quickly fatal. Insulin has allowed these younger diabetics to live longer and to enter the older age groups. There are very few diabetics dying in childhood, due to more widespread knowledge of the use of insulin in the management of the diabetic.

Joslin states that between the years 1898 and 1914, the average age of death of diabetics was 44. From 1914 to 1922 the average age of death was 46. After 1922 to the present time, the average age of death of diabetics was 59. Thus, it is further apparent that there are more diabetics to be cared for, also that there are more diabetics living to an older age, and thus more diabetics with problems in management, especially as regards the complications. It is estimated that there are 400,000 diabetics in the United States, and there are probably 10,000 diabetics in Chicago. Thus, it is a fairly common disorder. One out of every 337 persons is a diabetic.

To further understand the diabetic and the dangers which surround him, a study was made of the causes of death in a group of 130 diabetic deaths occurring in the Cook County Hospital in 1933. This survey showed that the principal causes of death were:

Gangrene
Coma
Pulmonary tuberculosis
Other infections, and
Cerebral accidents.

Thirty-six deaths were due to coma. It seems that with modern methods of treatment, coma should be avoidable, and many of the coma deaths were undoubtedly due to lack of knowledge regarding diabetic care and improper management before entering the hospital. However, one-half of the coma cases were associated with complications which undoubtedly were factors in precipitating the coma and the death. These complications were peritonsillar abscess, acute pancreatitis, carbuncle, otitis media, pneumonia, uremia, infected jaw, pyelitis, bronchopneumonia and abscess of the back. Comas associated with acute infections are very grave. In fact, so much so that any coma entering the hospital with fever should be carefully examined for an associated infection, because the prognosis is much more grave than in coma without fever. Three-fourths of the fatal comas entering the Cook County Hospital died within 24 hours. Thus of the 36 fatal cases, 27 lived one day; five lived two days; three lived three days, and one over three days. Of course, these are the fatal cases. I think this indicates the gravity of deep diabetic coma. The records show that all these coma cases received prompt and accurate care with adequate doses of insulin. Of course, many of the cases came in in extremely deep coma, and there was little hope of recovery. However, the very fact that the majority died within 24 hours shows the seriousness of deep coma, and when we realize, once acidosis develops, that the patient may be in deep coma within 24 hours, we must appreciate the extreme emergency which diabetic acidosis presents. Diabetic acidosis requires prompt and accurate management, and it is just as important for the attending physician and the interne to stay up all night in a diabetic acidosis case as it is in a surgical emergency case. These facts suggest that if your patient is in deep coma, he is apt to die within 24 hours. If he lives beyond 24 hours, he will probably recover. If he lives 48 to 72 hours after entrance into coma, he will most surely recover. One of the frequent sources of infection overlooked in diabetic coma is the urinary tract. Acute cystitis or pyelitis may be the associated factor which will prevent recovery. The urine should be carefully studied for evidence of infection. In some of these infectious cases, the acidosis may apparently disappear as indicated by the urine and blood reports, but the coma per-

sists, the fever persists, the patient remains weak and semi-stuporous with infection apparently the predominating factor. Infections of any type such as hand and foot infection and urinary infections occurring in the diabetic must be promptly treated in the regular manner in the hopes of preventing an associated acidosis and coma, which is apt to terminate fatally. One day on which this survey was made, there were present in the Cook County Hospital the following diabetic complications:

3 Ischiorectal abscesses
1 Carbuncle
1 Appendiceal abscess
1 Cellulitis of the arm
5 Pulmonary tuberculosis
1 Infected foot.

and several cases of gangrene. Forty-two deaths were due to diabetic gangrene. In fact, the majority of deaths in the sixth, seventh and eighth decades were due to gangrene. Diabetic gangrene has a much higher death rate than the ordinary arteriosclerotic gangrene. They are much poorer surgical risks. Without operation and treated conservatively in the hope that the gangrenous part may be amputated spontaneously or easily relieved by minor surgical procedures, many of these patients go along for several weeks apparently in good condition, finally develop a low grade temperature, become weak and die rather suddenly, usually due to an associated bronchopneumonia. On the other hand, when operated upon many of them die postoperatively in spite of careful treatment. Thus, it is our opinion that diabetic gangrene is a serious complication, whether treated conservatively or surgically, and our hope is that we may be able to prevent diabetic gangrene rather than to have to treat it. The diabetic should appreciate the great danger of gangrene, and should be properly educated regarding the care of his feet so as to avoid trauma, which is frequently the original cause of the gangrene. Diabetic gangrene is much more common in the group of patients of the type seen in the Cook County Hospital than in private patients under medical supervision who have proper diabetic care, and are educated regarding foot hygiene and the danger of trauma to the feet. In this series there were not many deaths due to foot infections without gangrene, showing the importance of differentiating the infected foot from the gangrenous foot. Many infected bunions, infected calluses and cases of osteomyelitis involving the toes, recover with proper surgical and diabetic treatment. It is essential for us to differentiate infection from gangrene in the diabetic foot. The foot with infection and no gangrene rarely causes death. The foot with infection at the base of one toe producing an inflammatory edema and gangrene of one toe, with the remainder of the foot and leg showing no circulatory deficiency, should not cause death. And so in any sore foot in a diabetic we must determine certain things:

First: The condition of the circulation as determined by the appearance of the leg and foot, noting the dorsalis pedis artery, the presence or absence of atrophy, and the temperature of the foot, and the presence or absence of pain. The painful, atrophic foot usually has deficient circulation.

Second: The type of infection. The presence of localized suppuration without gangrene is a good sign. A bad foot becomes gangrenous without localized suppuration.

Third: Osteomyelitis, its presence or absence. It is not uncommon for osteomyelitis to develop in the head of the first metatarsal bone, commonly with a discharging sinus and an associated gangrene of the big toe. These cases do well by amputation of the big toe and part of the metatarsal bone, provided the foot has adequate circulation.

Fourth: Deficient circulation and superimposed spreading infections are bad cases.

In observing the local lesion it is necessary to note whether it is demarcated, whether there is extensive spread along the lymphatics and veins, whether there is tenderness below the heads of the metatarsal bones on the plantar surface, which usually means spreading infection under the deep fascia. These cases present serious obstacles, usually require prompt amputation of the extremity. Close cooperation between the internist and the surgeon are necessary in making the decision as to the type of surgery and the appropriate time for operation.

Pulmonary tuberculosis is a serious complication of diabetes. In the majority of cases, the tuberculosis is not recognized until the disease is well advanced. The early symptoms of malaise

and weakness are overlooked, the diabetic blaming these symptoms to his diabetes, and by the time he is aware of the added complication, the disease is far advanced. Every diabetic should have routine x-ray of chest at least every six months in the hopes of avoiding this fatal error.

In a series of cases of diabetic tuberculosis observed at the Municipal Tuberculosis Sanitarium in Chicago, it was found that the majority of cases of diabetic tuberculosis entered the hospital either moderately advanced or far advanced, and that at the end of five years 25% were living. In other words, at the end of five years, three out of every four diabetic tuberculosis patients had died. This probably would not be true if the tuberculosis had been recognized in the incipient stage, at which time proper tuberculosis therapy and proper diabetic management might have prevented further progress, and the future undoubtedly holds much hope for this group of patients based on more accurate observation and earlier diagnosis. The type of tuberculosis seen in the diabetic is similar to that found in the non-diabetic, the typical adult type with varying degrees of fibrosis and cavitation, there being a marked tendency to formation of cavities and to progression with enlargement of these cavities. Diabetic patients should be spared the danger of contact with tubercular patients at all times. Most observers agree that the incidence of pulmonary tuberculosis is slightly greater in the diabetic than in the non-diabetic population. The tuberculosis is managed in the usual way, with proper rest, proper food and the usual operative procedures, as phrenectomy, pneumothorax and thoracoplasty. The diet should be a palatable diet with adequate calories. In our experience we have found the high carbohydrate diet of the type:

C 200, P 70 to 80, Fat 100

a satisfactory type with the C twice the F. There are many difficulties in managing the tubercular diabetic due to fluctuations in the activity of the tubercular infection, which one learns only by contact with these patients. The loss of appetite, the attacks of diarrhea which occur with pulmonary tuberculosis require changes in the diet from general trays to soft and liquid trays with the fluctuation in the appetite, and also necessitates variations in the dose of insulin with the variations of the appetite. The night dose of insulin is found necessary in many cases to prevent marked hyperglycemia in the morning.

DIABETIC CHILDREN

A group of 20 diabetic children were studied regarding the presence of tuberculosis. The diabetic child is said to be more susceptible to tuberculosis than the non-diabetic child.

Priscilla White in Boston states that in her series 41% diabetic children gave positive tuberculin tests and 65% gave x-ray evidence of calcification of the tracheobronchial lymph glands. However, in our group of 20 cases, which is a small group, there were only five cases giving a positive Mantoux test and one other case showing definite calcification of the lymph glands of the chest, with a negative tuberculin test, making a total of six cases or 30% with findings indicating a primary tubercular infection. If we compare the incidence of the positive tuberculin test in non-diabetic children, we find that the majority of surveys have shown that normal school children have an incidence of about 25% positive Mantoux tests, and so the diabetic child apparently shows a somewhat greater incidence of primary tuberculosis infection. We believe that the diabetic child should be protected from exposure to tuberculosis.

Of 23 diabetic autopsies by Dr. Jaffe and his assistants in the Cook County Hospital in 1933, a review of their autopsy reports revealed vascular sclerosis in practically all the cases over 50 years of age, as shown by atheroma of the aorta, cerebral sclerosis and coronary sclerosis. Definite coronary sclerosis was present in nine of the 23 cases. Thus when we observe our 50 year old diabetic clinically we must realize that he has vascular sclerosis and is liable to the associated complications as cerebral accidents, angina pectoris and coronary thrombosis. Active pulmonary tuberculosis was present in only two of the 23 cases. This is of interest when we compare it with the reports of the older writers, who in the nineteenth century reported 40 and 50% of the diabetic deaths as due to pulmonary tuberculosis.

Pyelonephritis was present in four of the 23 cases. Gangrene occurred in seven cases. Thus in this series of autopsied cases the principal pathological changes were vascular sclerosis, coronary thrombosis, pulmonary tuberculosis, pyelonephritis and gangrene of the extremities.

Conclusions.—The principal causes of death in

the diabetic in a series of 130 fatal cases have been enumerated. By acquainting ourselves with the complications of diabetes mellitus, and their precipitating factors, we will be able to prolong the life of the diabetic.

DISCUSSION

Dr. H. E. Ross, Danville: Dr. McMullen has very forcefully called attention to our obligations to the diabetic in causing him to enjoy a fuller and more productive life by recognition of the seriousness of diabetic complications and a necessity for further education and cooperation with the medical profession, thus obtaining what that profession can offer him.

Since one out of every 357 persons is diabetic and since the advent of insulin has added nineteen years to the life of the diabetic, how much more could be added to his life were he more professionally conscious. Have we not erred in our relationship to the patient in our education by causing him to be a self prognosticator of his condition and causing him to be professionally responsible to himself in his laboratory interpretation of the urinalysis? Do we consistently cause ourselves to be responsible for microscopic examination of the urine in the early detection of cystitis and pyelitis? Do we carefully examine the lungs of these patients and insist upon corroborative x-ray for the early recognition and treatment of tubercular complications? Have wd caused the diabetic to be conscious of the seriousness of a secondary infection? Have we slackened in the use of our diagnostic acuity in interpreting the arteriosclerotic tendencies of the diabetic under our care? May we have a more serious evaluation of the histamine reaction on the diabetic to prognosticate those predisposed to gangrene? Do we approach the diabetic as a handicapped constitution, maintaining his general health rather than focus our attention upon his state of glycosuria, for the maintenance of longevity? Are we causing the diabetic to have an even chance with the non-diabetic in meeting the medical and surgical insults his body might fall heir to? The difference between the diabetic and the non-diabetic patient from a prognostic viewpoint lies in the fact that the diabetic patient has less resistance to infection and infection makes the patient prone to early acidosis, thus constant professional observation and maintenance of high immunity by the use of all measures at our disposal for the improvement of their general vital resistance. Let us study more carefully our endocrine disorders and their effect upon the pancreatic gland with attention to the prenatal care of the endocrine deficient mother to lessen the birth of children who will be predisposed to diabetes because of their constitutional endocrine inadequacy. And may we also save the pancreas by the early surgical approach of the infected gallbladder to lessen the degree of pancreatic complications.

Dr. McMullen has curtly reminded us of our responsibility in the care of the complications of diabetes and our responsibility in using all the professional armamentarium at our disposal to prevent or retard the development of complications in these handicapped beings. May we not complicate the diabetic by placing unwarranted responsibility upon him in his self treatment. We must assume our full responsibility in our education to the patient by demanding a more frequent medical counsel and closer cooperation with the profession whereby he may receive the benefit from the advance of medical science in recent years.

TEAM WORK IN HEAD CANCER

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Nowhere in medicine is team work more essential than in treating cancer. To defeat this deadly enemy requires the best staff work, the keenest intelligence unit and the most decisive and powerful barrage of all the weapons at our command. No single treatment is universally applicable to cancer about the head. No one physician is likely to possess all of the knowledge, training and skill to diagnose such a growth, to determine its special vulnerability, to make the best exposure or approach, and to apply best the chosen agents.

Unquestionably the greatest recent advances in the treatment of cancer have been made in the use of x-rays and radium. It does not yet appear, however, that all cases in our field are best treated by irradiation. Some surely need electrosurgery or the scalpel, either alone or as a complement to the rays, and it requires a team of radiotherapist, pathologist and otolaryngologist to determine what is needed to give the patient his greatest chance of cure.

Any one who takes the responsibility of directing the treatment of a case of cancer should know the natural course of such a tumor and its probable response to irradiation or the possibility of its destruction by electrocoagulation as determined by histology, location, appearance, clinical course and the condition of its host. This discussion will attempt to define the criteria for the selection of the proper treatment in general, and in particular regions of our field.

Both electrosurgery and irradiation have certain advantages and disadvantages.

Coagulation is not a dangerous or difficult method. It is relatively rapid and free from hemorrhage, shock and postoperative pain, seals off blood and lymph spaces against infection and

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 22, 1935, at Rockford.

inoculation metastases and gives smooth healing. Tissue, malignant or benign, exposed to electrocoagulation is finally and irrevocably destroyed. Its failures are due to the fact that it may not reach all cancer cells. It is unavoidably destructive of some sound tissue and may leave mutilating defects. It entails the risk of any operation associated with anesthesia, aspiration or hemorrhage, although these are much less than in scalpel surgery.

Irradiation seems to the patients innocuous and with it they will be less likely to avoid or delay too long such treatment. Its cosmetic results are usually excellent. It captures within its sphere of action outlying strands or early extensions that electrosurgery would miss. Its proper use is attended with little risk.

Improperly used irradication may have serious effects. If not well screened there may be distressingly painful periostitis and perichondritis, or grave destruction. Inadequately used it may seal cells in scar tissue, hiding them until too late for surgery. It may so damage the tumor bed that later full irradiation will have small effect. If the first treatment does not cure, further irradiation is not likely to succeed or may lead to terrific destruction and surgery may then be impossible.

The differential between tumor cell and normal tissue destruction may not be great and to be efficient the dose of rays must be just short of permanent damage to mucosa or skin but with probably marked temporary changes.

In spite of tremendous work the effect of irradiation is not yet well understood, and Stewart required eighty-five pages to sketch the present ideas of radiosensitivity. Regaud believes the action is mainly on a susceptible nucleus. Ewing thinks both nucleus and cytoplasm are equally affected and the tissue bed reaction is perhaps the most important. Most authors hold that reactive fibrosis or other change in surrounding tissues have much to do with tumor destruction. Sittenfield and others consider there are two actions, first early cancer cell injury and later destruction due to tissue reaction. Joll is among those who believe that the reticulo-endothelial system and the macrophages have much to do with a favorable response to gamma rays. General antibody formation is considered a factor by some authors.

It is certain that for proper result of irradiation the local area must be well nourished with a good blood supply, free from great infection and without much involvement of bone or cartilage. The host must not be too cachectic, anemic or debilitated.

The probable response to irradiation of a tumor may be predicted as already stated to a considerable extent by a study of its microscopic appearance, clinical course and its duration and extent.

Though only one factor in the selection of proper treatment, the histological appearance is quite important. Certain types of tumor are vey sensitive to irradiation, notably transitional cell carcinoma, and lymphoepithelioma. Basal cell carcinomas are sensitive as are lymphosarcomas and round and reticulum-celled sarcomas. Adenocarcinomas and fibrosarcomas are relatively resistant.

Grading of epidermoid carcinomas on the basis of relative maturity of cell types, abundance of stroma, mitoses and other factors is valuable and in Quick's experience the prediction from this of the expected action of irradiation has been correct within ten per cent. error.

Immaturity of cells, relative malignancy and radiosensitivity do not exactly parallel each other but the degree of anaplasia is a rough indication of both malignancy and radiosensitivity.

There are many possible errors in attempts at grading. Tumors which look alike under the microscope may have very different courses. Biopsy specimens from different parts of the same tumor may look quite different and external factors as time of growth, blood supply, infection, compression, irritation and host reaction may greatly modify the histologic picture. Melnick has pointed out that different authorities use quite different criteria, considering from three to twenty points, and emphasis is placed in varying weights on cell type, which may be almost impossible to determine, mitoses, amount of stroma, round cell infiltration and many other factors.

Altogether, however, histology seems to point quite definitely to the proper treatment. Following the lead of Dr. R. Jaffé at Cook County Hospital my experience has been quite definite that very immature cell forms, undifferentiated, with little stroma, of Broder's Grade IV and III yield well to irradiation. Types with well ma-

tured cell forms, abundant stroma, with hornification or other indication of specialization do well with electrosurgery and may not be easily destroyed by x-ray or radium. Basal cell carcinoma gives a high percentage of cures with either.

The ancestral cells of a cancer seem to determine to great degree the susceptibility to irradiation and the location because of this as well as other factors is very important. The more radiosensitive tumors arise from the tonsillar region, the pharynx and nasopharynx and the posterior third of the tongue. More resistant forms which do well with electrosurgery arise from the skin of the face, ear, nose and lips, the palate, alveolar ridge, cheek, epiglottis and anterior third of the tongue.

The gross appearance of a tumor gives important information as to its probable response. If it is infiltrating or fissured, with indefinable or poor margins, results with electrosurgery will be doubtful. If it involves an unfavorable location as the base of the tongue or lymphoid tissue of the pharynx irradiation will give much the best chance. Likewise if it seems to have grown rapidly or if there is much fixation and induration it is probably not for electrosurgery. If the tumor has a well marked or rolled border or is not fixed or is papillary or even fungating it is likely to be amenable to diathermy. If regional glands appear early or are disproportionate to the original growth the tumor is likely to be of a radiosensitive type and also beyond surgery.

To sum up our criteria for treatment we may say that if a tumor is of a relatively mature type, located in resistive tissue, of slow progress, well defined and of limited growth the major reliance may be upon surgery, especially electrosurgery. If the opposite is true we should yield it willingly to irradiation and leave our energies for more likely material to the great improvement of our morale and our statistics.

Men trained with the different agents will find that not only does their consultation with each other help define the more judicious use for each alone, but they will discover that in an increasing number of cases advantage comes from a combination of surgery and irradiation.

Preoperative x-ray or radium may be valuable as a therapeutic test of radiosensitivity. It may markedly lessen the danger of metastases in cases to be done surgically, but if done should be done thoroughly, and followed by surgery soon enough to prevent later necrosis. Preoperative irradiation may reduce bulk or vascularity and make surgery much easier as in the case of a hemangioma or chondrosarcoma, and if it fails to completely eradicate the tumor electrocoagulation can then finish the job.

Regional gland involvement is a hard problem. I have seen few good results from removal of more than discrete glands, and believe that the extensive dissection may actually remove an important barrier. Radiation of the gland area, to be done intensively or not at all, and perhaps better only if glands appear to enlarge, or interstitial implantation of radon or radium needles after reflecting the skin have seemed to give better results with much less effort. Metastases are frequently radioresistant and results with them are discouraging.

General measures may be quite important and include correction of anemia and poor nutrition with high vitamin diet. Good mouth hygiene is vital in intraoral or throat cancers. We have a young man who had seven skin cancers, one 9 cm. wide, including squamous cell, basal cell, and cylindroma which were running wild, controlled by diathermy with high vitamin A and fat diet.

Treatment of cancers of the various locations may be briefly discussed. Basal cell carcinomas of the skin yield well to irradiation or coagulation with nearly all of them cured if seen early. Radium scars less and is better therefore, especially around the eyes, but may not suffice if cartilage is involved. In squamous cell carcinomas I think coagulation is more certain but contact radium or x-ray should cure over 75% if they are of less than 1.5 cm. diameter. Combined treatment is excellent and Pfahler believes that 98% of cancer of the lip if less than 1.5 cm. wide treated by electrosurgery followed by intensive irradiation will be cured.

In the antrum, though many of the carcinomas are of immature cell type, they give late metastases and are well treated by coagulation. They must be well exposed and radically destroyed. Combined radiation is valuable but painful periostitis will follow unless it is well screened.

Carcinoma of the tongue involving the anterior third, especially if it is papillary or fungating, yields well to coagulation with or without radiation. If it involves the posterior third or base particularly if infiltrating or fissured it should

be given to radiation though even its results here are likely to be disappointing. Electrosurgical removal of the whole tongue is not difficult nor very incapacitating and may well be done in the occasional extensive case without gland involvement.

Carcinoma of the alveolar ridge is, I believe, preferably treated by coagulation especially if bone or periosteum is invaded. On the buccal surface either diathermy or radium will give good results.

One five year cure is all I can show for a good many painful efforts to treat carcinoma of the tonsil by diathermy. From the Memorial hospital are reported 38% five year successes and Coutard had 28% by irradiation here and these cases should surely be dealt with by radium or x-ray.

These agents also are much preferable for carcinomas of the nasopharynx, pharynx and hypopharynx. Isolated involvement of the epiglottis and occasionally of the palate may be removed by electrosurgery. Most of the formidable external surgical approaches for pharyngeal cancer do not seem to be justified. Even if the cancer is of the rare mature cell type suspension will usually give adequate exposure for successful coagulation. Exposure from outside of a piriform sinus carcinoma for radium implantation may be valuable.

Cancer of the larynx is an important case for discussion. Since it has been shown that cartilage may withstand considerable doses of well screened irradiation if given fractionally some men have developed great enthusiasm for such treatment for the larynx. A curtailed discussion of the subject before this section last year perhaps inadvertently left the impression that this was unquestionably the treatment of choice. Statistics may not reflect rapid improvement in technique but they are important. The best figures for irradiation are those of Coutard showing about 26% of five year cures, although of his seventeen cases of 1926, 53% were alive in 1931. On the other hand Jackson reports 82% and Gluck Sorenson 88% of five year cures by laryngofissure in cases suitable for that operation. As St. Clair Thomson has emphasized this operation leaves a nearly normal individual with natural airway and a serviceable voice. It hardly seems reasonable to desert such a satisfactory procedure for a much more problematical one in these early cases.

Laryngectomy, also with its 76% cures shown by Mackenty, seems also more desirable though a perfected technique of irradiation may yet prove the method of choice. Irradiation postoperatively may increase the cures and should be tried on extrinsic cases although cartilage involvement and local metastases lessen its chances as it does those of surgery.

Coagulation of doubtful borders adds to the chances of success with laryngofissure and in cases which have overflowed the larynx may, when used through a thyrotomy, give as good results as the more formidable laryngectomy. Especially if followed by irradiation after the method of Hautant and Coutard it may be quite valuable in advanced cases.

The question of whether to use x-ray or radium can perhaps best be settled by those specializing in irradiation. Hard rays which reach the cancer cells without destruction of essential normal tissue are the effective agent and can apparently be secured with either by proper filtration. Berven thinks the radium bomb with two to four grams of radium much better but Regaud of the Curie Institute considers each about equally effective. X-ray seems cheaper. Radium is necessary for local or interstitial use.

The untrained or occasional user of irradiation is not likely to do his patient much good. Many cases so treated come to us at the Cook County Hospital too late for successful surgery, radioresistant from insufficient treatment and not infrequently suffering great pain. Either radium or x-ray should be used only by or under the direction of men well trained in their use and in quite sufficient amounts. It does not seem good practice to use x-ray of less than 200 kilovolts, constant potential, in fractional doses, well screened, up to the point of maximal skin tolerance. There is surely no place for the careless, the casual, the inadequate use of radium or x-ray.

The considerations enumerated, I think, show there is required for successful cancer treatment a degree of highly specialized knowledge and experience especially in pathology, in radiology and in clinical laryngology best fulfilled by a team. Especially can such a team avoid a one-sided approach and preserve the judicial attitude that should best lift the curse of cancer.

DISCUSSION

Dr. A. James Larkin, Chicago: I plead, with Dr. Galloway, for team work in the treatment of cancer of the head and neck. The diagnosis of cancer about the head is chiefly the function of the specialist in the given field. Biopsy in modern practice is necessary, not only for diagnosis and therapy but for prognosis. Here the pathologist performs an invaluable service. Now the problem of therapy is to be faced. The attending specialist must serve as the chief of the team if the best results are to be obtained. The radiologist as part of the therapeutic team should be in attendance so that he may examine the lesion, know the character of the tumor, its clinical features, the stage of the disease and the histologic findings as given by the pathologist. The attending specialist and the radiologist in conference, with the patient at hand, review the proposed treatment weighing and considering surgical removal, electrosurgery, or irradiation by local, interstitial or external application of radium, or the use of x-ray in its modern form. In some instances the combination of any two or all three of these accepted methods of dealing with cancer will serve best. If such team consultation is held before treatment is begun, the results will surely justify the means. Too often in the past the surgeon or the radiologist has sought consultation only when he has reached an impasse. Then too often the consultation yields but little in the way of benefit to the patient.

The radiologist who is plunged into the various specialties where men are experts in diagnosis and therapy can scarcely be expected to be sufficiently well trained in methods of examination, technic of manipulation, principles of postoperative care and general medical management, to carry on alone in the proper treatment of such carcinomas as those of the nasopharynx, larynx, metastatic masses in the neck, etc. Therefore, the radiologist, to be of value, must be prepared to supply technics which are safe, efficient and reliable. He must be able to prescribe and make radium applications, the specialist providing the exposure or approach. He must be able to predict reactions, warn of complications, prognosticate as to final results, etc. In short, the radiologist must furnish valuable, reliable, and sound radiation information to merit a place on a cancer team in the field of head and neck therapy.

From the standpoint of the radiologist I congratulate Dr. Galloway on an admirable and fair presentation of the subject.

Dr. James T. Case, Chicago: I want to reiterate what Dr. Larkin has just said—I think Dr. Galloway's paper is the fairest, most comprehensive presentation of the present status of irradiation therapy in cancer of the face and neck of any I have read or heard. I say that not only from hearing it, but Dr. Galloway was good enough to send me a copy. One minor point of terminology I might mention: instead of the expression "hard gamma rays" we should say "hard rays" or "penetrating rays." I am sure he meant that. It is a good thing to define the wave length of the rays employed, and then we know the exact meaning of each other's.

With reference to skin lesions, some of the essayist's rather casual statements might be emphasized. In epithelial malignancy of the skin we must use an epidermicidal dose if we expect to kill a tumor. In the skin lesions it is best to make use of a primarily destructive dose of x-ray or radium instead of periodic divided doses over a long period with intervals of freedom from treatment, because radio-resistance develops rapidly. This is true also of lesions within the mouth. The dose must be epidermicidal; therefore mucositis must be produced and if the radiation has not been given to the extent of producing a definite epidermitis of the mucous membrane, one has not given a large enough dose. That cannot be accomplished without hurting the patient; he will have a period of difficulty in swallowing even water. I go into all of these things with the patient and tell him that the first two days or so he may feel better, then he may feel that he has mumps because of the primary reactive swelling of glands, in seven or eight days his mouth will be sore and then the outer layers of the skin and mucous membranes will be denuded. Patients go through treatment better because they know what will happen, and as you have prophesied what will happen and it has happened, they feel a confidence which aids materially.

The sensitivity of tumors and the basis upon which treatment should be outlined have been given. Team work is necessary. The aftercare of the patient, the nourishment of the patient, is important. I find that if carefully shielded smaller areas of treatment are used, accurately laid out so that radiation will get to the part to be treated and save as much as possible of the other tissues from unnecessary irritation, there will be less unfavorable influence on nourishment and less cachexia. Of course larger areas are sometimes necessary on account of the more extensive involvement of the glands. When the mouth gets so sore that liquid foods are necessary, frequent cleansing should be practiced with sodium perborate solution; the cleaner it is kept the more comfortable the patient will be. The skin can be treated with mineral oil, and later on when it is moist and ulcerative, thin layers of gauze may be used, saturated with boric acid. I also use Dodd's lotion. Dr. Delph and I have worked on some of these cases together, and he thinks that if patients take liquid into the mouth as quadrupeds do, lying face down, and sucking the food, to avoid the effort usually made, it is more comfortable.

Dr. Galloway mentioned 200,000 constant current which means 300,000 volts of pulsating current as we ordinarily speak of the x-ray. There are very few constant current equipments in this area. With reference to the choice between x-ray and radium, there is no choice; they should be used together. X-ray therapy with 200,000 or 300,000 volts is more flexible than radium packs or the high 700,000 or 800,000 volts equipment. The latter are rather inflexible and hard to adjust. Local radium applications are infinitely more flexible than either of the others, but have the serious disadvantage of lack of focus-skin distance, a vital

factor in producing homogeneous radiation in the deeper tissues around the malignant disease.

Dr. Roland D. Russell, Chicago: I cannot add anything to this very excellent paper of Dr. Galloway but I would like to stress a point in the treatment of laryngeal carcinoma, regardless of its microscopic characteristics. The lesions of the cord do not respond to radiation. I have seen many radiated with very poor results. In the same type of lesion, squamous cell, of the epiglottis and pharynx, I have seen them melt away as if by magic. How long the result will remain I do not know.

Dr. Francis Lederer, Chicago: Whenever a paper of this character is presented, it answers more or less as the confessional of the man who has been through the gamut of all the different modalities of treatment, and I think the experience of all of us is that we have come to the same conclusion as Dr. Galloway has—that is, that we have not as yet arrived. The radiologists talk very glibly regarding the problem, and yet a statement such as Dr. Russell makes, coming from his clinic where there is a tremendous amount of malignancy treated with radium, is comparable to the experience of a great many laryngologists. The radiologists have come to the point where they are going to refuse to treat a lesion of the arytenoid or epiglottis, or the lesions we call inoperable, because of the experience they are having. They feel that the involvement is too great to even consider such cases for irradiation. Recent experiences with radium, giving patients 450,000 mgm hours of radium, and the Coutard technic of six to eight thousand Roentgen units, does not impress one with the fact that we have anything permanent in x-ray or radium at present. The remarkable results of Coutard do not seem to be those of men in this country at present, so far as I know. Despite the tremendous dosage, both local destruction and recurrences are usually the case. I do not think one can bank on the value of microscopic findings so far as the final cure that is to be expected, regarding radio-sensitivity or radio-resistance. I am coming more to the conclusion of the foreign school, that more depends upon the site of the tumor or what it is doing to the host than upon the cellular character of the tumor. They may melt away, as Dr. Russell says, but they come back stronger than before. It is quite remarkable to hear of these cases of cures, but I personally do not see them. I have come to the definite conclusion that if I cannot reach the lesion by radical surgery it will not respond to radium. This is not a final statement by any means because we are still working. Dr. Larkin and other men in his field know that I have been cooperative in these cases. I think many men will agree with me that we have not arrived at the final knowledge of irradiation and that we are going to be able to cope with the problem when we know more about the properties of these agents and their dosimetry.

Dr. M. H. Cottle, Chicago: I would like to express my appreciation for the presentation by Dr. Galloway this morning of the tremendous amount of work that has been put forth by him and his associates during the last ten years, of which I have been an occasional observer. I think he was one of the first in the middle west to understand the possibilities of diathermy. I feel that he brings to us the last word, and we can accept his statements as a milestone in our progress, and certainly with thanks.

Dr. T. C. Galloway, Evanston: When I had a chance to look at cases with Dr. Larkin and Dr. Case and other radiotherapists and discuss with them each particular case, it opened my eyes to what irradiation could do. One must be openminded, one must know what can be done, and one must have the chance to consult with the pathologist and with the radiologist and must individualize the cases. I think in twelve years there is at least a 50% improvement in the prognosis of these cases, and I am far from being as pessimistic as Dr. Lederer is. He and I both see failures, but when you see a good result with proper treatment I think you cannot help getting enthusiastic. High voltage is important but some of Coutard's results were reported with about 175 kilovolts. I do not think the right impression has gone out with regard to early cancer of the larynx. I do not think you should send for radiotherapy an early case that can be operated on with such a high chance of success.

TUBERCLE BACILLI ON THE LIPS OF PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS

LARS GULBRANDSEN, M. D.
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CHICAGO

When the present death rate from tuberculosis in Illinois is compared with the death rates of past decades, we find the mortality has dropped from 169 per 100,000 population in 1890 to 53.3 per 100,000 in 1933.[1] But even with this remarkable reduction in the death rate, tuberculosis still ranks sixth among the major causes of death in this state, and is second only to pneumonia in deaths due to communicable diseases. From these facts it seems that control measures enforced in tuberculosis at the present time overlook accessible sources of infection which permit a fairly widespread distribution of the organism. We have been convinced for some time that these sources are of a nature comparable to those found in other infectious diseases, sources which afford a direct transfer of infectious material from one person to another. Our considerations in this problem became

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Read before Section on Public Health & Hygiene of Illinois State Medical Society, May 22, 1935, at Rockford.

clearly defined as a result of the work reported recently by Stuart, Knudsen, and Arnold.[2] These investigators showed that while healthy skin surfaces are able to destroy bacteria at a rapid rate, the exposed portions of the lips have little self-disinfecting power. In fact, the lip region acts as a reservoir for bacterial populations, giving rise to part of the flora of the mouth. This study suggested that in pulmonary tuberculosis, the lip region might be a source of dissemination of the tubercle bacillus not recognized in the epidemiology of this disease. It was from this standpoint that the following work was undertaken.

Experiment 1: Tubercle bacilli on the lips.

Our subjects were selected from one of the tuberculosis hospitals in the city of Chicago*. We were interested only in those patients having active pulmonary lesions of tuberculosis, with sputa positive for tubercle bacilli on direct smear stained by the Ziehl-Nielsen method. This type of patient was used throughout this work.

Initial attempts to find tubercle bacilli on the lips of these patients consisted in passing a sterile swab moistened with sterile saline solution over the lips, and preparing slides which were stained by the Ziehl-Nielsen method. A total of 150 slides from ten patients were examined, and after prolonged study of the smears without being able to find acid-fast organisms, we came to the conclusion that this method was not delicate enough to detect tubercle bacilli which might be residing on the lips. No attempt was made at cultivation. Therefore, guinea pigs were used in subsequent experiments.

The procedure was as follows: A sterile swab was moistened with sterile saline solution. The patient was asked to hold his mouth in the normal closed position, while the moistened swab was passed over the exposed vermilion area of both upper and lower lips. The swab was then transferred to 5 c.c. of sterile saline and thoroughly shaken. Lip swabs were taken in this way at 15 minute intervals for two hours on each patient, during which time the patient was asked not to moisten the lips with his tongue. An accurate record of cough and expectoration was kept for the two hour period. At the end of the two hour period the tubes containing the swab and saline were again shaken vigorously, the fluid was transferred aseptically to sterile hypodermic syringes, and inoculated subcutaneously into the right inguinal region of guinea pigs weighing on an average 175 grams. A sample of sputum from each patient served as the inoculum for positive controls. The guinea pigs were obtained on the day they were used from a farm outside the city of Chicago, a source which has proven satisfactory for tuberculosis diagnostic work in this laboratory for the past six years. A total of 72 guinea pigs—9 for each of 8 patients—were inoculated in this way. In addition, lip swabs from two healthy adults were inoculated into 8 pigs as negative controls. Six weeks after injection the animals were sacrificed, and post-mortem findings noted. From each pig, sections of liver, spleen, lungs and inguinal lymph glands were prepared for histologic examinations. Another series of sections were stained with a modified Ziehl-Nielsen stain to demonstrate tubercle bacilli in the tissues. Averages of our findings are recorded in Table 1.

This shows that tubercle bacilli could be demonstrated, by animal inoculation, on the lips of every patient in this series with positive sputum. In one case bacilli were found even after the lips had been swabbed six times since the last cough one hour and forty minutes previously. Our records, however, do not always correlate cough very closely with incidence of tubercle bacilli on the lips. In some instances no

*We are indebted to Dr. S. R. Rosenbloom of Chicago for his assistance in obtaining the patients on whom these studies were made.

Table 1.

Tubercle Bacilli from Lips and Nose.

	No. of Swabs Taken	No. of Pigs Injected	No. Pos. for Tuberculosis	Per Cent. Pos. for Tuberculosis	Longest Time Interval Between Coughs	Average Frequency of Cough	Average Frequency of Expectoration	Control Sputum
Lip swabs from tuberculous patients.....	64	64	54	84.3	100 min.	30 min.	15 min.	Positive
Lip swabs from normal persons.....	8	8	None	None	None	None	None	None
Nasal swabs from tuberculous patients.....	32	32	None	None	92 min.	15 min.	40 min.	Positive
Nasal swabs from normal persons.....	4	4	None	None	None	None	None	None

tuberculosis was produced in guinea pigs from swabbings taken immediately after cough, but swabbings taken at later time intervals produced typical lesions when injected into animals. This occurred even when patients did not moisten the lips with the tongue, and at present we have no explanation to offer for these peculiarities.

Experiment 2. Examinations of nasal swabs. Using the same technique as for lip swabs, we examined 4 patients to determine whether tubercle bacilli could be demonstrated within the nasi alae. Sterile swabs were introduced into the nose, rotated thoroughly, and shaken well in 5 c.c. of saline. This process was repeated at 15 minute intervals for two hours. Guinea pigs of 275 grams weight were injected in the same way as described before. All of the pigs so injected died septicemic deaths within one week after injection, and it became apparent that if the tubercle bacilli were to be demonstrated at all by this method, the saline emulsion would have to be treated in order to kill streptococcal and staphyloccocal contaminants. Accordingly, the nasal swabbing was repeated, and the swabs shaken in 5 c.c. of sterile saline solution. To each specimen, an equal volume of 3% NaOH was added, and incubated for 30 minutes at 37° C. The fluids were then brought to neutrality (phenolphthalein) with 50% HC1. The entire volume of this fluid (11 to 12 c.c.) was injected subcutaneously into the right inguinal region of the guinea pigs. Six weeks later they were sacrificed, and examined for lesions of tuberculosis as described previously. The results of these experiments are recorded in Table 1.

Although there was no evidence of tuberculosis found in any of these animals, we believe this experiment does not exclude the possibility of tubercle bacilli being contained in the nasal passages and nasal discharge.

Discussion: The result of this investigation shows that viable tubercle bacilli reside upon the lips of patients with open pulmonary tuberculosis. From an epidemiologic standpoint it follows that tubercle bacilli exposed on the surface of the body in this way have abundant opportunity to be transferred from the lips to the hands and fingers, or from the lips to whatever utensil or article comes into contact with them. As a result, persons working or living in an environment of tuberculosis have as much possibility of becoming infected with the tubercle bacillus through actual contact as one would of becoming infected with other types of bacteria from typhoid or diphtheria carriers. A few instances can be cited in which we believe this standpoint is emphazied. Opie and McPherson[3] in 1932 reported observations made during an eight year period in which they found that when roentgenographic examinations were used for the recognition of pulmonary lesions, husbands and wives in marital contact with tuberculosis under varying conditions are infected from five to nine times as often as persons with no known contact with the disease. Evarts, Potter and Dunn[4] in 1934 reported a study in which they followed the children of 136 families into adult life. At least one parent in each family was known to have had tuberculosis, in 103 instances there being actual records found of positive sputum. Among 554 children of these families, the tuberculosis mortality, in offspring between the ages of 15 and 39 years, was 2 and 3 times as high as among the general population of the same class of people. Meyers, Diehl, and Lees[5] in 1934 examined the number of positive tuberculin reactions among girls entering a nurses' training school having a tuberculosis service of 30 beds. Thirty-nine per cent of these girls presented positive reactions upon entrance, whereas 3 years later upon graduation, 100% had positive tuberculin reactions.

Apparently, in these instances, tubercle bacilli are being disseminated along avenues which are not encompassed by present methods of tuberculosis control. These measures of control consist mainly in prevention of droplet infection by the use of the handkerchief while coughing and sneezing; the proper disposal of sputum; and elimination of foods, mainly milk and meat, obtained from infected animals. But as more is understood in regard to this disease, we find these measures must be supplemented by closer attention to existing sources of infection. The patient with tubercle bacilli in his sputum must be looked upon as a "carrier" of tubercle bacilli with the same public health status as a carrier of typhoid or diphtheria. Consequently, if measures are to be taken to prevent dissemination of tubercle bacilli exposed upon a body surface in this way, these measures must be concentrated

upon the patient. Our recommendations consist of instructing the patient in regard to personal hygiene. Along with the proper disposal of sputum, he should be taught that tubercle bacilli reside constantly upon his lips, and therefore any object which comes in contact with these structures such as fingers, hands, tableware of any type, and towels have an opportunity of becoming contaminated with tubercle bacilli. In addition, adequate facilities should be provided for washing the hands and lips at frequent intervals, in order to maintain the self-disinfecting power of the skin at its highest activity at all times. In brief, all the principles of medical asepsis as practiced in regard to other infectious and communicable diseases should be instituted in the care of tuberculous patients.

Summary: Tubercle bacilli have been found upon the lips of patients having open pulmonary tuberculosis. Organisms exposed in this way can survive for periods of 1 hour and 40 minutes and still be viable. This source of infection is not under control by any of the methods now enforced in caring for tuberculous patients. Closer attention to medical asepisis in order to suppress dissemination of the tubercle bacillus is recommended.

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DISCUSSION

Dr. D. O. N. Lindberg, Decatur: Before reading the few pages I prepared after looking over Dr. Gulbransen's excellent presentation, I would like to make a few comments by way of preface. It is a fact that many of these things should be considered from the practical aspect. Regardless of whether we consider the person who is non-allergic to be more unsafe than the person who is allergic, the fact is that the non-allergic student nurse who enters training in a general hospital has four times the incidence rate of active pulmonary tuberculosis as the allergic student nurse. This remains a fact aside from the question of whether or not allergy produces a state of relative immunity.

A word, too, about the high degree of contagiousness that this work suggestions—we must realize that there are two main channels of infection; one, inhalation, and the other, ingestion. In a well-organized and regulated tuberculosis sanatorium where the patient is instructed carefully to cough into a paper napkin and the material is burned and the dishes are sterilized, a non-allergic student nurse can go through her whole course of specialized training and never develop tuberculosis; never give evidence of even primary infection. From the inhalation standpoint, therefore, we find, that, practically speaking, a strict contagious hospital type of regime is proved unnecessary.

It should not be difficult to completely accept the findings of Drs. Gulbrandsen and Keller which indicate that tubercle bacilli may remain on the lip surfaces of the "positive sputum" case for a period of nearly two hours following the act of expectoration.

Infections by the lip and finger modes occur, of course, not through the inhalation portals of entry but rather by the ingestion route.

The fact should not be overlooked that, as has been established experimentally, the normal gastrointestinal tract, through its juices, fermentation and peristalsis, easily dispose of small doses of tubercle bacilli. The experiment might have been of greater than academic interest if the number of bacilli found upon the lips of the group studied, had been determined.

That such observations are necessary in any attempt to stress the rôle played by the transfer of bacilli from the lips of the patient to articles which in turn might enter the digestive tract of other persons, is suggested by the vast amount of experimental data already at hand.

Findel, for example, using the most susceptible of experimental animals, the guinea-pig, fed fourteen (14) of them with food containing 19,000 to 382,000 tubercle bacilli of average virulence. He was unsuccessful in producing disease in any of the animals during an observation period of one hundred and seventy-four (174) days.

The conclusion that persons working or living in an environment of tuberculosis are menaced by infection to the same degree as in the case of typhoid fever, etc., appears not to be justified by the experience of phthisiologists over the centuries. Fishberg states, in this connection that, "the principal supported by generations of experience is diametrically opposed to our procedure in dealing with such diseases as the exanthemata, typhoid fever, etc.—in which no competent physician thinks of exposing an individual, though a strong suspect, to the risk of infection from established cases."

In a recent, unpublished questionnaire study of the incidence of manifest tuberculosis occurring among the personnel groups of sanatoria in the United States, further support was given the observation made by Dr. C. Theodore Williams, long before the discovery of the tubercle bacillus, and before precautions were taken to prevent the transmission of the disease, that infection among the staff personnel was seldom observed.

The recommendations concerning the precautionary regime to be followed in the case of the patient, except-

ing for the strictest contagion type of regime considered by most of us to be unnecessary, are those which have been routinely observed in standard sanatoria for a great many years.

The incidence of tuberculous disease among student nurses undergoing training in general hospitals, would become lowered and conjugal tuberculosis lessened if the simple, common-sense, methods of prophylaxis were carried out in both home and hospital.

Dr. Gulbransen, in closing: I might counter the statement advanced by Dr. Lindberg with the statement that the guinea pig, being a highly susceptible animal, fed with tubercle bacilli did not contract tuberculosis with the same observation we have made in regard to diphtheria in guinea pigs, under the same conditions of experiment. We have fed guinea pigs excessively high doses of diphtheria bacilli over a continued period of time and have had no deleterious effects produced in the growth curve or in the weight of these animals whatsoever.

So, while experiments may bring out the fact that ingestion of the infectious organisms did not necessarily produce the disease in the animal, I don't think we can overlook the fact that the average of ingestion is a possible portal of entry. Of course, physiologic variations that occur in the life of the individual are of such nature that at certain times they are more susceptible to disease than other times, but this variation seldom exists in the laboratory animal.

The point we wish to stress, is that these precautions in regard to the tubercle bacilli being exposed on the lips could be applied very practically in homes where there are small children in contact with the patient. I don't think anybody will deny this.

EXPOSURE TO COLD AS A FACTOR IN THE ETIOLOGY OF A LOBAR PNEUMONIA

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Many patients with pneumonia, in any of its forms, give a history of having had some disturbance in the upper respiratory tract previous to the development of pulmonary symptoms. Since this sequence is of frequent occurrence, some investigators (Cole),[1] have suggested that even in lobar pneumonia the pneumococci are only secondary invaders in a process primarily caused by some other agent, possibly a filterable virus.

The comparatively large variety of microorganisms that are associated with lobar pneumonia speaks against the absolute specificity of the pneumococcus as the causative agent, although it is found in the vast majority of the cases. In this connection it is not without interest to cite the observations of Gohar and Aboud[2], who studied culturally specimens, obtained by lung puncture, from seventeen cases of pneumonia in children. In only four of the seventeen cases were there solely pneumococci; in two there were pneumococci and some other organism; and in the remaining eleven cases, they found no pneumococci, but various other pathogenic organisms.

Smillie and Leeder[3] in their extensive observations, have found that a healthy carrier of type I pneumococcus does not transmit this organism to immediate contacts, even though the individuals are living under overcrowded conditions. From their evidence they suggested that there is some factor other than simple contact which determines the transfer of type I or II pneumococci from a patient with lobar pneumonia to contacts, and that family epidemics of colds may be such a factor operating in the transfer and establishment of type I and type II pneumococci from the infected to the uninfected.

Carriers of type I and type II pneumococci, when once established, may retain their role for a considerable period of time without contracting lobar pneumonia, without inducing it in contacts, and without producing a second group of carriers. Jacobson[4] has concluded that social status and race do not seem to influence the percentage distributions of fixed type pneumococci in normal throats. The percentage of normal individuals showing fixed type pneumococci was greater during the pneumonia season (January to April) than at any other time of the year. Healthy persons intimately associated with cases of lobar pneumonia acquired the homologous type of pneumococcus and harbored it in their throats for a long time, but hospital attendants in contact with lobar pneumonia did not harbor the same types of pneumococci as the patients.

In studies on the epidemiological factors in pneumonia of children, Schultz[5] has compared the virulence of the pneumococci from several cases with that of the strains isolated from the corresponding carriers and found no significant variation. Gundel and Wasu[6] have likewise stated that the virulence of pneumococci among the different types isolated from healthy and sick persons is practically the same.

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Concerning the widespread distribution of pneumococci, Gundel and Schwarz[7] have pointed out that the pneumococci may be found quite often in the upper respiratory tract of newborn children after the second or third day of birth. Indeed a wide distribution of pneumococci among the healthy population, with variation in types according to the season, has been repeatedly observed by a number of investigators.

From this brief review of the literature, we see that the question of etiology of lobar pneumonia is still obscure. The pneumococcus, which causes over 80 per cent of the total cases of lobar pneumonia is not considered definitely as a primary cause. Its wide distribution speaks for itself. The investigators suggest that there is some other factor, that promotes the activity of the pneumococcus. The suggestion of a filterable virus would be a very convenient one, but the question of a filterable virus, as a causative agent of colds does not hold true for all colds.

We know of many cases of colds (that precede the pneumonia) which are easily traced to the exposure to cold or wet. The filterable virus, as a primary causative agent of colds, does not explain in full such intimate connection, so many investigators are led to seek some other factors that may be involved in these cases. Schmidt[8] found that colds occur most commonly in persons whose heat regulatory system easily breaks down. If a person is chilled for some time, a contraction of the blood vessels of the skin and of the mucous membranes of the respiratory organs appears. In a healthy person, however, this vascular contraction of the mucosa soon retrogresses; whereas in a person who is predisposed to colds, it continues much longer. In addition to the congenital or acquired predisposition to a persistent vascular contraction, following the cooling of the body, there is another predisposition necessary for the development of a cold or catarrhal manifestation; namely, the chronic infection of the mucous membrane with bacteria, such as pneumococci, streptococci and influenza bacilli. The predisposition to colds, he states, may be accentuated also by nervous exhaustion and by psychic influences. The normal person will have a tendency to colds if special conditions deprive him of his proper heat regulation; a draft or unperceived current of air constitutes an added cause.

In the etiology of a cold, therefore, many separate and distinct factors play a part. Therefore the colds, which antecede the beginning of lobar pneumonia, we assume, depend largely upon the upset in the circulation of the mucous membranes of the upper respiratory tract.

Grant, Mudd and Goldman[9] showed that the nasal cavity, postnasal space, palatine tonsils, pharynx and skin react to chilling of the body surface with reflex vasococonstriction and ischemia. They proved this by measurements of the temperature of mucous membranes of the above mentioned regions and organs. We[10] extended these temperature measurements to the upper part of the trachea and at present to the lower part of the trachea and primary bronchi.

For our temperature readings of the mucous membranes of trachea and bronchus, we used a Queen's potentiometer. For the temperature measurements of the mucous membrane of the trachea the ends of three thermocouples (devised by Dr. Bachem) covered with shellac and embedded in celloidin; and for recording the temperature of the mucous membrane of the bronchus the three thermocouples mounted on a piece of rubber tubing of suitable diameter, and fastened with a rubber band, were used. Under nembutal anesthesia a tracheotomy was performed and the embedded thermocouples were introduced and applied flatly to the surface of the mucous membrane of the trachea, fastened by a piece of cork, the latter resting on the opposite side of the trachea; and for the bronchus, thermocouples mounted on rubber tubing were introduced into the primary bronchus. Heparin was injected intravenously (10 mlg. per kilo), the femoral artery opened and a long glass thermometer introduced through it into the abdominal aorta. Ice packs and hot water bags were applied to the skin of the chest of the dogs.

Previously (Nedzel[11]), we have reported the results of twenty-four experiments on eight dogs on temperature changes in the trachea in relation to heat and cold on the skin. Here we present our findings in eighteen experiments on six dogs, using a more refined technic. The observations were extended on the upper and lower trachea and primary bronchi, using two dogs for each part of the respiratory tube, experimented with. On each dog three experiments were performed. The experiment consisted in applying, first, ice bags to the body surface of the dog and after a certain time, removing them, and, in the

second place, applying hot water bags and removing them after a definite interval. We presented an average of all the experiments performed on the same part of the respiratory tract, since they all, in general, run alike. It is worth while to mention that individual dogs reacted

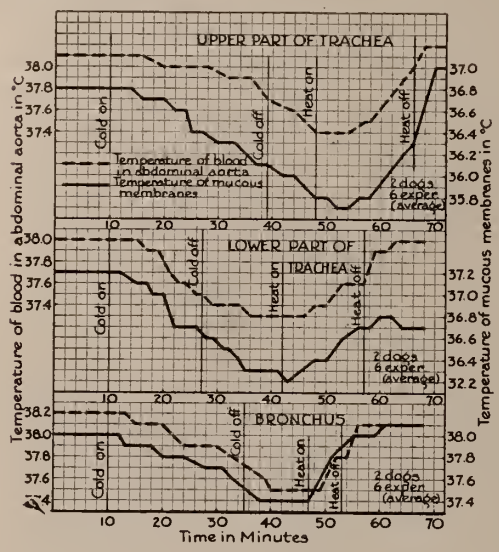


Chart 1. The abscissa represents the time in minutes from the beginning of the experiments, the ordinates, temperature in Centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. Dotted lines represent the temperature in the abdominal aorta, the straight lines, the temperature of the surfaces of the mucous membranes.

differently in the degree of reaction toward the application to heat or cold, namely, some dogs were more sensitive and some more stable, a fact, previously emphasized by us (Nedzel[10]).

The results are shown on the accompanying charts. The abscissa represents the time from the beginning of the experiment, the ordinates, temperature in Centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. On chart I, the dotted lines represent the findings of the temperature in the abdominal aorta, the straight line, the temperature of the surfaces of the mucous membranes.

It is easy to see that the application of cold is followed by a drop of temperature in the abdominal aorta and on the mucous membrane of the trachea. The application of heat acts reversely, but in both cases the fall and rise of temperature on the mucous membrane is more pronounced. In case of a bronchus there is no such pronounced deviation which we explain by the vast concentration of blood in the lungs that conducts its temperature to the mucous membrane of the bronchus.

The second chart represents the results of the same experiments, but here we expressed the temperature in the abdominal aorta as a constant and the temperature of the mucous membranes in a curve. The latter shows the deviation of the temperature of the surfaces of the mucous membranes from the temperature in the abdominal aorta, recorded at the same periods.

These deviations are more pronounced in the mucous membranes of the upper trachea, less in the lower trachea and relatively negligible in the primary bronchus. It should also be noticed, that these deviations (rise or fall) do not occur gradually, equally, but appear in irregular wave-like manner all the way through the experiments.

The recorded temperature measurements give us an understanding of certain physiological processes that are going on in certain regions. The lowering of the surface temperature means contraction of the blood vessels of the mucous

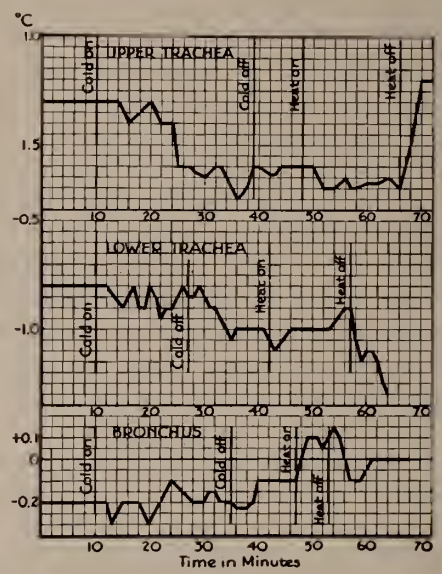


Chart 2. The temperature in the abdominal aorta expressed as a constant, the curve represents the deviation of the temperature of the surfaces of the mucous membranes.

membranes of the respiratory tract, and this coincides synchronously with the same phenomenon on the skin.

This response of the blood vessel bed of the mucous membranes of the respiratory apparatus

is not gradual and equal, as shown on the second graph, but occurs in wavelike manner all the way through. This we believe, can be explained only by a loss of equilibrium in the blood vessel's bed of the mucous membranes, when the contractions and the dilatations of the blood vessels do not appear uniformly and equally.

The autonomous nervous system, as pointed out many years ago by Dastre and Morat,[12] acts as though it were composed of two parts, which constantly and simultaneously act in opposite directions, balancing each other. The activation of one leads to the immediate inhibition of the other. On one side we have the splanchnic region and on the other the periphery. The later experimental and clinical evidence substantiate their conclusions. The diminished peripheral activity, as it is noted by contraction of peripheral blood vessels, leucopenia and diminished permeability, is accompanied by increased activity in the splanchnic region. There is an increase in gastric secretion (Müller and Petersen,[13, 14] Arquin[15]), and in secretion of bile (Petersen and Müller,[16] Müller and Kast[17]), the concentration of leucocytes in the splanchnic vessels during the activity takes place Müller[18]), there is also an increase in permeability in the liver and splanchnic region (Petersen, Milles and Müller[19]).

On the other side, the alkalinization of duodenum, which lowers the activity of the splanchnic region, is accompanied by a peripheral leucocytosis (Arnold and Brody[20]). Increase in the activity of the skin glands and permeability and a peripheral leucocytosis are accompanied by a diminished activity in the internal or splanchnic region (Müller and Petersen,[14] Petersen and Oettingen[21]). Bogendoerfer and Sell,[22] studying 170 healthy and sick persons, found that the application of heat or cold to the skin would cause decrease or increase in the flow of gastric juice and correspondingly—the amount of hydrochloric acid content in the latter.

Activity of the splanchnic region can be judged also by the degree of the selfdisinfecting power of the gastrointestinal tract. If an animal is kept in ordinary temperature his splanchnoperipheral balance is in a state of equilibrium and the stomach exercises its disinfecting power by destroying the exogenous bacteria and by keeping the endogenous flora of the intestinal tract at its usual level, the stomach and duodenum being practically free from fecal flora. But as soon as the animal is placed in the warm room, the periphery increases its activity, there is a dilatation of skin blood vessels, etc., while the splanchnic region becomes inactive, the exogenous bacteria introduced into the gastrointestinal tract are not destroyed, the fecal flora is out of control and appears in the duodenum and stomach (Arnold and Brody,[23] and Arnold.[24, 25])

Tiemann[26] states that the lung vessels act as do the peripheral blood vessels. Müller and Holscher[27] experimentally show that the leucocytes of the lungs quantitatively and qualitatively coincide with the same of the skin. We[11] showed the similar phenomenon for the trachea. Tendeloo[28] states that chilling of the skin causes stasis and edema of the lungs.

All cited evidence stresses the importance of a splanchnoperipheral balance. The increase in activity on one side of this system automatically supresses the activity on the other side. The significance of this physiological phenomenon is clear. The upset of one of the organs may lead to a synchronous dysfunction in a whole group of organs that belong to the same side of the splanchnoperipheral system.

Our experiments and those of others show that the respiratory tract falls into the latter group (the peripheral), and reacts to exposures similarly and synchronously with the skin.

The manner in which the dissemination of pneumococci from the upper respiratory tract into the lung occurs is still doubtful.

Fried[29] in his studies of anthrax infection in rabbits found that the intratracheal introduction of bacilli causes no disease in rabbits provided the extrapulmonary tissues are spared contamination. The microorganisms so inoculated are retained by the lungs and are destroyed within a few hours after the infection. The destruction of the highly pathogenic bacilli is performed by the macrophages by way of phagocytosis. The cells found in groups alongside the wall of the air sacs (so-called alveolar epithelium) play the outstanding role in the phagocytosis of the anthrax bacilli. The experiments have likewise shown that the pulmonary reaction to this "virtual" infection is akin to the "model infections" with vital dyes and oils, reported in his earlier studies. Wadsworth[30] found that the intratracheal injections of virulent pneumococci into normal rabbits was fol-

lowed by a rapidly fatal septicemia without local lesions, while similar injections in partially immunized rabbits were often followed by a characteristic pneumococci consolidation. Fried's experiments show that injection of small amounts (1 cc.) of horse serum into the lungs of normal rabbits produces a transient pneumonitis confined to the dorsal aspect of both lungs, but the injection of the same amount of horse serum into the lungs of rabbits that have been previously sensitized to the same serum, causes, in a high percentage of cases, a lesion which is confined to one lung with the gross and microscopic features of lobar (fibrinous) pneumonia as seen in man.

On the other hand, Blake and Cecil[31] in their production of pneumococcus pneumonia in monkeys found that the pneumococcus is unable to produce pneumonia following intravenous injection. They state that the invasion of the blood stream in lobar pneumonia is secondary to infection of the lungs. Blake and Cecil produced a pneumonia by direct intratracheal inoculations of pneumococci. But Seegal and Seegal[32] show that the injections of pneumococci by the tracheal route to produce lobar pneumonia in rabbits (as Cecil and Blake have done) include an intravenous administration of these organisms, when the mucosa is pierced or injured. But we know also (Reith and Squier[33]) that it is quite common to find an existing bacteremia in apparently healthy persons.

In studying these experiments and observations, which appear as though they conflict, we may derive a certain conclusion. The presence of pneumococci in the upper respiratory tract is not considered sufficient cause for development of a lobar pneumonia. It is a dysfunction of the upper respiratory tract (no matter how produced, with filterable virus or other factor), that must precede the development of the pneumonia and this disturbance must be of such extent or type, that will involve simultaneously the whole respiratory tract and lead to the lowered resistance of certain tissues. This locus minoris resistentiae occurs where normal blood circulation is impaired. The vascular contraction of mucous membranes of the respiratory tract, which accompanies that of the skin during exposure, causes a delay in the mobilization of the defensive forces and as a result of this disturbance in the irrigation of tissues, they become impaired and the bacteria present find a favorable field for their development. The exposure of the body to cold is a powerful factor that causes not only the contraction of blood vessels of the skin, but also on account of the existing splanchnoperipheral balance, involves the blood vessels of the mucous membranes of the whole respiratory tract and causes stasis and edema in the lungs. If pneumococci are present, the lowered resistance of the whole respiratory system somehow permits the pneumococci to descend, lodge in the tissue of the lungs and multiply. The upset of the defense power of the lung is well shown by the cases of lobar pneumonia, following the inhalation of various irritating vapors (Tice[34]). These clinical observations are supported experimentally by Winternitz, Lambert, Jackson and Smith (Winternitz[35]). They found that after chlorine poisoning, organisms that normally inhabit the mouth of the dog find their way into the bronchi and lungs of the dog shortly after gassing and in animals that survive the acute period, remain there for a long time. They show that the pneumococcus and a small gram negative hemoglobinophilic organism, normal inhabitants of the dog's mouth, can be cultivated from the lung as early as one-half hour and as late as four days after gassing. In studying the bacteriology of pneumonia following gassing with phosgene, they found that the bacteriological findings were much the same as in cases of pneumonia in non-gassed dogs.

Indirect confirmation of our thesis is found in the experiments of Terrell, Robertson and Coggeshall[36]. In developing a new method of producing pneumococcus lobar pneumonia in the dog they found that the injection of morphine will facilitate production of the disease in the animal. It seemed that the depressant effect of the preliminary injection of morphine has an important bearing on the inception of the disease. They also noted that the disease appeared to be influenced by certain other conditions, as for instance, by intercurrent respiratory infection, such as snuffles and by the temperature of the environment. Several dogs infected during hot weather recovered after a moderately severe disease, though the same dose regularly produced a a fatal outcome when given during cool or cold weather.

Let us consider the factors that promote the spread of pneumonia, so well recognized by prac-

titioners. Exposure to cold and wet; the winter and spring seasons, when we have the most abrupt meteorological changes; age groups of 12 to 35 years, the most active in the outdoor life; men who are more liable to exposure; alcohol, carelessness on the part of intoxicated persons and impairment in their heat regulating apparatus; negroes, who are adjusted to more equitable climate, etc.

The epidemics of lobar pneumonia that break out in closed institutions or in overcrowded quarters may be explained not only on account of possibilities of more close contact among the sick, but also by taking into consideration that they are under the influence of the same living conditions, and are exposed to the same causes which may impair their general resistance.

Exposure to cold acts as a powerful impulse and definitely upsets the splanchnoperipheral balance. The impulse causes the respiratory tract in toto to undergo physiological changes which favor the penetration and localization of pneumococci or other organisms (already present in the upper respiratory tract) in the lung tissue and permit their multiplication, with deleterious clinical consequences.

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THE IMPORTANCE OF INTRADEMIC REACTIONS

C. A. Earle, M. D.

DES PLAINES, ILL.

With no idea of belittling the laboratory, the x-ray or the old time physical examination I desire to present the claims of the skin as evidenced by its reactions as an important aid not only in the diagnosis of diseases but as a revealer of immunity or susceptibility to disease itself. It is apparent that disease prevention is receiving and will receive increasing attention as time passes. Because of the conservatism of the general practitioner Public Health bodies are doing much of this practice which the family doctor should do. Permit me to recount the history of some of the measures, the importance of which many medical men have failed to grasp. As far back as 1913 Bela Schick devised his test which shows with almost mathematical certainty that a person is susceptible to diphtheria if positive and immune if negative. The accuracy of this test was shown from the very beginning by measuring the antitoxic content of the blood. Because of the high percentage of children from 6 months to 3 or 4 years of age who are susceptible they may be immunized without a previous Schick test but all above this age should be tested first before receiving T A or toxoid. It is not necessary nor scientific to give an immune child these protective doses. Excepting the elaboration of toxoid no improvement has been made in the prevention

Read before Section on Medicine, Illinois State Medical Society, Rockford, May 22, 1935.

of this disease for 22 years and yet it is only during the last 5 or 6 years that the family doctor has done much of this work. At least once a year all children above 3 years of age, without regard to their previous immunity status, should be retested because now and then there is a slipping of immunity in both the natural and artificial immunes. In addition to the knowledge gained as to the immunity status of the child by these repeated tests it has been definitely shown that the test itself has immunizing power. A single skin test given to a child who is but slightly susceptible may result in such an increase in the antitoxic content of the blood that he would not get diphtheria.

In 1924 Gladys and George Dick reported the elaboration of a skin reaction for susceptibility to scarlet fever. While this test is perhaps not quite as accurate as the Schick test, its reliability warrants its general use. Because of the mildness of scarlet fever during the last few years and the rather severe reactions that sometimes follow the 5 doses of immunizing toxin it has been difficult to popularize these preventive measures. However, that they are effective has been abundantly shown in nurses' homes, orphanages and other institutional life. All children should be Dick tested even if the susceptibles are not immunized. It is certainly worth something for a parent to know whether his child might get scarlet fever if exposed. The State Department of Health recognizes the value of this test in not quarantining those who give a negative test.

Twenty-eight years ago Von Pirquet announced his scratch test for tubercular infection. Three years later Mantoux brought out his intradermic tuberculin test. The history of no other diagnostic device illustrates so well the conservatism of the medical profession. Here is a test that when positive points almost infallibly to tubercular infection, not necessarily to tubercular disease, and although perfected 25 years ago it is still not in common use by the general practitioner. Every child should get this test. Those giving a positive reaction should be x-rayed. Now and then an active case will be found that never was suspected. In addition a diligent search should be made for the source of the infection of those who react positively. Usually its origin will be found in the home, but may be from the child's teacher. In this way symptomless active cases of tuberculosis may be unearthed. I am constrained to believe that with the general use of this test and the x-ray, with the modern methods of treatment by rest, collapse therapy and surgery, in another generation the great white plague will be conquered.

The technique of these tests is easily acquired. It consists in injecting into the skin 1/10 cc of a properly diluted antigen. The results are as enlightening for which they are used as are the results contained by the electrocardiograph, the metabolism apparatus or the microscope. I can not insist too strongly that the technique and interpretation of these tests should be the common property of every general practitioner. Eleven years ago in speaking of the Schick test at a meeting of this society I made the following statement: "The knowledge and skill thus acquired have great potential possibilities for similar tests and procedures for control of other diseases will undoubtedly be discovered." Such has come to pass. Foshay has abundantly shown the intradermal test for tularemia can be elicited a week before agglutinins appear in the blood. The skin test is also of some value in the diagnosis of that baffling disease—undulant fever. To a limited extent it is used to determine food allergy. The Frei intradermal test for lymphogranuloma inguinali is practically specific for that disease. Muskalblat and Director conclude that the intradermic test with fungous extracts, while not absolutely specific, are of considerable value in diagnosis of skin infections. We may look in the not distant future for a skin test for polio and a vaccine for immunization against that disease as well as against the various types of pneumonia. Frances, in Archives of Pathology of October, 1933, says the skin test has proved to be an extremely valuable aid to serum therapy in certain types of pneumonia. It has a distinct advantage over the agglutinin reaction in that it is not merely an index of circulating antitoxin. When positive it invariably denotes that recovery has begun; when negative it is an indication for further serum therapy.

In addition to the knowledge gained by these tests their repetition will have an educational value. People will learn that they are devoid of danger and that no unpleasant results follow their use. They will consequently be more

prone to have their children given the repeated tests that infectious disease prevention warrants and other diseases suggest. There is also an economic bread and butter side to this question which physicians are beginning to feel. Let me quote from a recent paper by Dr. Chadwick. He says: "With the lessening and eventual control of the communicable diseases the physician has been deprived of much remunerative practice. This financial loss can in a large measure be compensated for by taking advantage of the opportunity to carry out immunization procedures. In other words practice preventive medicine. The apathy of the medical profession can not indefinitely postpone the use of the methods of disease detection and prevention that science has elaborated. Our dog in the manger attitude rightfully subjects us to criticism."

Some years ago when John Dill Robertson was Health Commissioner of Chicago he offered at a branch meeting of the Chicago Medical Society to have his doctors Schick test children and refer the positives to their family doctor for immunization. The offer was indignantly refused with the statement that they would do the testing themselves. A year afterwards I was unable to learn that any of these doctors had done any considerable amount of testing. It is common knowledge that every succeeding Commissioner of Health of Chicago has tried to interest the profession in diphtheria prevention but always with scant success.

If through the inactivity of the medical profession Public Health bodies take over the prevention of communicable disease it is not unreasonable to assume that they may invade other departments of practice.

The work of the scientific investigator when it professes to throw new light on traditional and customary practice has always been received with more or less skepticism by the rank and file of the medical profession. However charged the air is with neglect and disbelief, some progress is being made. Let us hope for the sake of the future practice of medicine that more interest will be taken in these newer methods of disease control.

DISCUSSION

Dr. Henry C. Niblack, Chicago: The value of these procedures is undoubted and their execution simple. The question now is how to make their use by the private physician more widespread. Up to the present, their use has been sponsored principally by public health organizations. Now that their value has been demonstrated, I believe that this work should be taken over by the private physician. Public health organizations have enough problems facing them; every time the private physicians can assume the responsibility for a health procedure, that much more opportunity is given the community health agency for other urgent activities.

We have done considerable Schick testing and immunizing against diphtheria during the past few years in our community. It has been interesting to note how much greater the part of the private physician in this work is now than in the beginning. This is encouraging. It is also interesting that the interest in Dick testing and immunization against scarlet fever has increased, both on the part of laymen and physicians. There seems to be a carry-over from the interest in the first to the second. Possibly the increase in the incidence in scarlet fever during the past season has had something to do with this. As a public health procedure I should say that immunization against scarlet fever is still difficult, but it is satisfactory in the hands of the private physician where he has his patients under control; this is also true of controlled groups in institutions.

Regarding tuberculosis, nothing need be said about treatment. However, if we are to continue the battle and finally succeed, we must, more than heretofore, find the cases in the early stages. This responsibility must necessarily lie with the private physician. In the Mantoux test, he has a simple means of detection.

So here we have these instruments of disease prevention. The average layman may say that they belong in the luxury class. People do not weigh the cost of prevention against a possible long period of costly illness in the future. All of us, as physicians, must everlastingly continue the education of the public as to the importance of these and like measures. It is up to us to put into effect the principles of preventive medicine.

SIMPLIFIED TECHNIQUE OF ABDOMINAL SUPRAVAGINAL HYSTERECTOMY

Emil Jonas, M.D.

CHICAGO

A simplified technique of abdominal supravaginal hysterectomy is presented and diagrammatically illustrated. The pathological or normal location of the round ligament is of greatest importance in the application of the method. The operative procedure and discussion will be limited to the following very common condition, fibromatosis, but may be used in any other situation requiring operation. The basis of the technique is the pathological anatomy of the large fibromyoma, namely: serous, intramural and submucous types.

Pathological anatomy—Any of the six following pathological possibilities may be encountered after entrance into the abdomen, to wit:

Fig. 1. The eye meets a large fundal mass which obliterates normal structures. In this instance the orientation must be immediate by referring to the mental image that the round ligaments, Fallopian tubes and ovaries are below

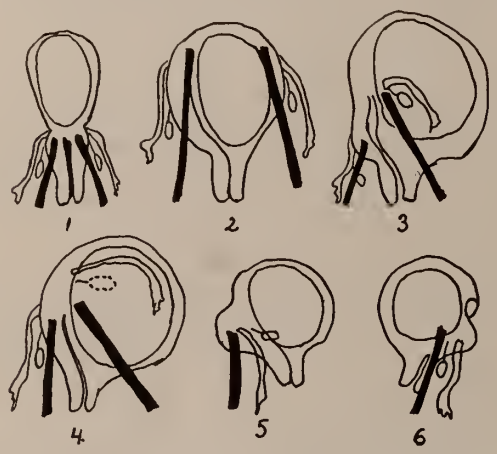


Fig. 1. (Winter, Gyneckologische Diagnostik)

the tumor mass, and symmetrical on the lateral sides of the uterus because the tumor mass exerts no pressure on these parts.

This mass may be wholly subserous, intramural or both. Unless unusually large it should be disregarded and an immediate procedure to the supravaginal hysterectomy below the tumor begun.

Fig. 2. If the mass is situated in the uterus below the insertion of the round ligaments, so that the round ligaments are pushed up high and both ovaries are symmetrical on the side of the tumor. We find the same condition with interstitial and submucous types. Location of the round ligament is of the greatest importance before applying the method later described. In this case the round ligament must be ligated high up, and a separation of the anterior and the posterior layers of the broad ligaments done before reaching the vesicouterine reflection of the peritoneum and uterine vessels.

Fig. 3. The fibromyoma is situated in one wall of the uterus. This wall is stretched upward and the whole uterus lies obliquely and crooked; the round ligament on one side is way down and on the other side high up and it goes obliquely above the tumor. One ovary lies way below and the other high up on the tumor. In this case the operation must be started below the tumor and separation made in the shortened ligament from the bladder and ureter. This shortening occurs opposite the tumor and the structures are in normal relation to the displaced uterus.

Fig. 4. If the fibromyoma is situated between the layers of the broad ligament, the round ligament and the adnexa are lateral to the tumor mass and in normal relation to the uterus and freely movable. The round ligament and the adnexa on the side of the tumor is separated from each other so that the former lies anteriorly and the latter posteriorly and the tube is displaced to the top of the tumor. Keeping this in mind, the operation is begun on the freely movable normally situated ligament and adnexa by means of multiple clamps and the adnexa on the tumor side is located and clamped as shown in diagram 4.

Fig. 5. If the tumor mass is in the posterior wall of the uterus, both adnexa and round ligaments are found anteriorly.

Fig. 6. If the tumor mass is in the anterior wall of the uterus both adnexa and round ligaments are found posteriorly, prolapsed in the pouch of Douglas. The above pathological anat-

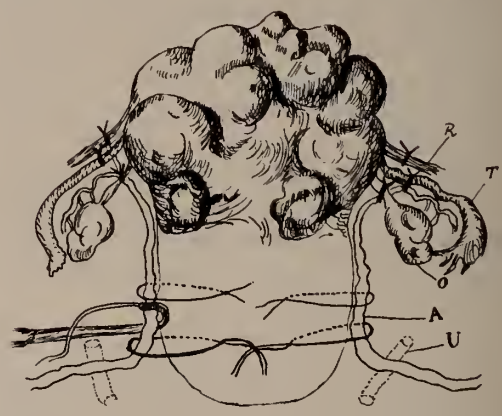


Fig. 2. Original drawing shows multiple fibroids. R Round ligament, T Tube, O Ovary, A Uterine artery, U Ureter

omy of the pelvic structures holds true in all three types of fibromyomatous tumors of the uterus.

The operative technique which I am about to describe has been used for the past six years with excellent results. Rarely more than three clamps are used.

Technique.—The steps in the ligation of the round ligaments and the adnexa are as follows:

One clamp is placed on the insertion of the round ligament with the uterus. A heavy chromic No. 1 catgut suture is placed on the lateral side of the clamp surrounding the ligament. The ligament is cut medial to the suture; the process is repeated on the Fallopian tube and the ovarian ligament proper. These three structures are similarly ligated on the opposite side. Through these steps the uterus and tumor mass should not be dislodged from the pelvis. Each of the separate sutures is left long and held by a separate hemostatic forceps placed at its terminal end. The three sutures are raised so that the anterior layer of the broad ligament can be separated from the posterior. The anterior layer of the broad ligament on each side is cut downward in the direction of the crevix, always keeping close to the uterus. The cut is extended downward to the loose peritoneum between the bladder and the cervix. The bladder is now pushed away as far as possible and a transverse incision with scissors is made on the anterior layer of the broad ligament extending from one side of the cervix to the opposite side. All blood vessels having been ligated, there should now be complete hemostasis. To this point the technique followed has been the one usually described in most textbooks. I deviate from the ordinary procedure in that I do not attempt to clamp the uterine vessels. The danger of thrombosis is minimized, I believe, if no clamps are used. The uterus is now delivered through the abdominal opening. The bladder is elevated by means of a narrow retractor as the body of the uterus is brought outward by means of a traction forceps. The posterior layer of the broad ligament is clearly brought into view. This layer is cut downward corresponding with the incision made on the anterior layer. The terminal cut ends of the anterior and posterior layers of the broad ligament are pushed downward. This exposes the uterine vessels. These are now ligated in the following manner: with a cervical needle and with heavy No. 1 chromic catgut two mass sutures are taken into cervical tissue one-half inch from the lateral margin of the cervix, one-half inch apart. The same procedure is carried out on the other side of the cervix (see diagram). The long ends of both of these sutures are now tied together on the anterior wall of the cervix. I consider this important because sometimes cervical tissue is friable and the tension on the blood vessels might be released. Between these sutures I use another ligature, carried by an aneurysm needle. This ligates the veins and arteries without and cervical tissue in it. A transverse cut above the sutures is now made and the uterus is removed. The broad and round ligaments are now anchored in the usual manner to the stump of the cervix. The peritoneal fold is sutured over the stump, thereby burying the ends of the ligaments and all raw surfaces. The advantages of this modified technique of supravaginal abdominal hysterectomy over the usual procedure lies in the following facts:

1. It is impossible to ligate the ureters for no clamps are used and the uterine blood vessels themselves are not injured.
2. There is little or no bleeding during the operation, and no danger of post operative hemorrhage.
3. The danger of thrombosis is greatly minimized for the uterine blood vessels are not traumatized.
4. Cervical stum exudate and cellulitis do not occur because of the undisturbed numerous small arterial anastomoses.
5. The uterine arteries and branches are not separated or torn away from the cervical stump so that a functional position of all the blood vessels is retained. The large cervical arteries retract and hold the cervical stump.

Conclusion. — A simplified cervical stump treatment is advocated in order to facilitate speed in operative procedure and lessen post-operative complications in difficult supravaginal abdominal hysterectomies. Abdominal diagnosis combined with pathological anatomy is the sine quo non of the success of this simplified surgical technique.

THE USE OF PROSTHESES OVER UNSIGHTLY EYES

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CHICAGO

Considering the successful use of contact glasses for the correction of conical cornea and other defects of vision, and the surprising degree of comfort with which these thin transparent glass shells

Reprinted from American Journal of Ophthalmology, June, 1935.

are often worn—so that frequently within a week the patient has learned to wear such a contact glass continuously for periods of six or eight hours—it occurred to me that a patient with a healthy globe, but with a scarred cornea or other unsightly anterior-eye condition could also, with equal safety and comfort, wear a contact glass which, instead of being transparent, is opaque and colored to match the opposite eye.

That this can be successfully accomplished is evidenced by an interesting case in my experience. A young lady attending high school eight years ago, while heating hydrochloric acid in a test tube, burned her left eye. The resulting leucoma covered the cornea. For this unsightly condition eminent oculists of Los Angeles, Buffalo, and Chicago, whom she consulted, had no remedy to offer except tatooing or enucleation.



Fig. 1. (Schneider). Prosthesis over unsightly eye.

Last August, during a visit here, she related her inability to secure a desirable teaching position for which she was qualified, because of the very apparent handicap of a blind left eye. She realized the detrimental effect of this deformity and the need of its correction, but before submitting to enucleation of the blind eye she wished my opinion as to which of the several operations would prove most successful.

The injured eye was quiescent. It appeared to be normal in size and tension. Vision was reduced to hand movements. There was partial ptosis of the upper lid, probably due to a defense reaction in an effort to hide the defect. The cornea as previously stated, was covered with a leucoma.

My advice was that an enucleation was not indicated, as an ideal result could be anticipated by wearing a perfectly fitting, very thin contact-glass-like prosthesis over the injured eye. This appealed to both the patient and to the artificial-eye maker, with the result by the fourth day the patient left for California, wearing a thin prosthesis continuously and with perfect comfort and satisfaction. Recent reports from this patient confirm the complete success of the prosthesis. She says that motion of the eye and match in color are so perfect that her friends cannot guess which is the seeing eye.

This interesting experience would lead one to believe (1) that enucleation for an unsightly but comfortable eye may not be indicated; (2) that an artificial eye can be made thin enough to be worn successfully over an unshrunken globe; (3) that a patient can very soon wear such a prosthesis with comfort; (4) that the mobility of the prosthesis when riding over a natural globe with normal musculature is certain to be much better than when the prosthesis is resting on any sort of stump.

Shell eyes have been in use for many years and are frequently worn over stumps or shunken globes, but now, with our recent contact-glass experience, we should not hesitate to advise the wearing of a very thin prosthesis over an unsightly eye. They can be made as thin as a contact glass, and are as safe and as satisfactory to wear.

31 North State Street.

THE SCHOOL TEACHER AS A SOURCE OF TUBERCULOSIS INFECTION—REPORT OF AN X-RAY STUDY

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The teacher, in the schools of Illinois and other states, is permitted under existing law to perform duties which require close, oft-repeated, if not prolonged contact with the child, without any necessity of first submitting to a careful physical examination by a legally qualified prac-

Read before Section on Public Health and Hygiene, Illinois State Medical Society, May 22, 1935, at Rockford.

TABLE 1.

The Occurrence of Physical Signs (Rales)
In *280 Consecutive Cases of Active Pulmonary Tuberculosis
Admitted to Macon County Tuberculosis Sanatorium
(Diagnosis Based Upon N. T. A. Diagnostic Standards—Including X-ray

Diagnosis	No. of Cases	Rales Noted on Admission		Rales Developing with Lesions					Rales Disappearing with Lesions				
				Arrested		Retrogressive		Total	Arrested		Retrogressive		Total
		No.	%	No.	%	No.	%	%	No.	%	No.	%	%
Minimal	73	20	27.4	6	8.2	4	5.8	13.7	7	9.6	4	5.8	15.1
Moderately advanced	92	63	69.0	8	8.3	7	7.6	16.2	9	9.8	2	2.2	12.0
Far advanced	107	94	87.8	1	0.9	11	10.3	11.2	4	3.7	3	2.8	6.5
Total	272	177	60.7	15	5.5	22	8.1	13.2	20	7.3	9	3.3	15.1

*Eight of which were re-diagnosed, "Non-Tuberculous," with all but one presenting rales on both admission and discharge.

titioner of medicine, for certification as to freedom from communicable disease.

The Illinois Department of Public Health Manual[1] provides that "the employment of tuberculous persons as school employees, or in other occupations endangering the health of others is specifically forbidden." A further provision requires that "Any teacher or person employed in or about a school building, who is suspected upon a well founded belief to be suffering from open pulmonary tuberculosis or other form, shall be required to submit to a thorough physical examination, and to submit specimens of sputum and other discharges for bacteriological examination, etc." Therefore, existing Illinois law requires an examination of the school teacher, from the standpoint of tuberculosis, only if and when the disease has reached such a stage of advancement as would make her *obviously* a "suspect." Public health authorities and the medical profession generally must necessarily consider such legislation as being antiquated and altogether unprotective to the school child.

Dietrich[2], in 1930, found that only five states were known to have laws requiring teachers to be free from tuberculosis. In the meantime, "school boards, it appears, are well within their legal authority in requiring of teachers and applicants evidence of freedom from tuberculosis as well as from other communicable diseases."

The teacher has only the normal incidence of active tuberculosis as it is found among the so-called healthy adult population. In fact, according to a recent statistical study[3] when determining this "average" it should be borne in mind that it is among the unskilled workers that the high incidence of tuberculous disease occurs. However, children come into frequent and close contact with the teacher, who, if tuberculous is capable of infecting children year after year if the disease were undetected[4]. Klein[5], Vanderloo[6], along with a host of others in Europe and this country are fully agreed that in the classes that have been taught by a person affected with open tuberculosis, the number of children who give evidence of tuberculosis is increased.

In the interests of the furtherance of public health measures and in the protection of the school child from teacher sources of infection in Macon County, Illinois, the authorities of the public and parochial schools, in the absence of obligatory legislation, have passed resolutions or otherwise provided that all new teacher applicants to the school system would be required to furnish evidence, based upon an examination by a legally qualified medical practitioner, that they are in good health and are free from communicable disease. The physical examination would be supplemented by a single chest x-ray film study.



Fig. 1. X-ray film showing advanced lesion in a "symptom-free" teacher.

Provision was made so that any teacher found afflicted with tuberculosis would be given a leave of absence of an indefinite character but which would hold until the teacher was ready to return and assume her duties in the school.

The rôle of the Field Service of the Sanatorium was limited to x-ray film certification of the existing teacher group. In selecting this method we considered that experience has proved that conscientious evaluations of roentgenological examinations afford as adequate information concerning the presence or absence of pulmonary tuberculosis—the disease—as is possible with present day diagnostic methods[7] [8].

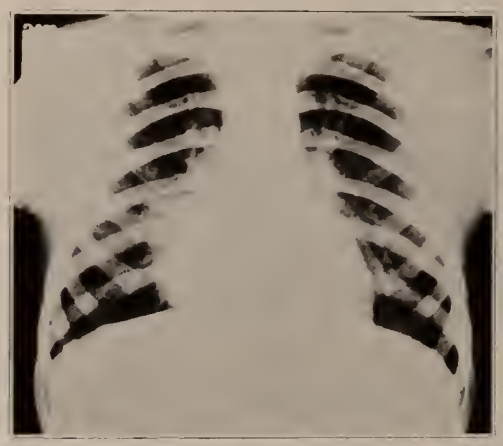


Fig. 2. Film illustrates right basal lesion of the parenchyma, typical of severe childhood tuberculosis.

When it is considered that 0.0% of minimal, 17.4% of moderately advanced, and 36% of cases with far advanced tuberculosis show bacilli in their sputum under routine conditions of examination[9], this method of certification is a most untrustworthy source of case-finding.

In a study of 280 consecutive Sanatorium admissions[10], Macon County, Illinois, 72.6% of the incipient group, 31.0% of the moderately advanced, and 12.2% of the far advanced cases were negative upon chest physical examination (i. e. "râles" absent after expiratory cough) Table I. A well taken history, though constituting an important complementary diagnostic factor in tuberculosis, is nevertheless inconclusive, and therefore unsuited to survey purposes. The intradermal tuberculin test concerns infection and affords no information whatsoever concerning the presence or absence of disease. According to the findings of Peck, Jordan[11], and others, teachers may be expected to yield positive reactions averaging 50%. In our group, totaling 705 teachers, the tuberculin testing program might have "screened out" approximately 350 who could have been certified without x-ray examination. On the other hand, by the direct filming of the entire group there was avoided the usual antagonism that follows injection diagnostic methods among those who are to be examined compulsorily. If we grant that, in the presence of a positive Mantoux reaction, the possibility exists that an active lesion may exist in other organs even though the lungs appear "clear" after chest film study, we are nevertheless in agreement with McPhedran[12] who considers that x-ray findings are conclusive, and with Sergent[13] who so aptly says, "A radiological examination is an autopsy of the living." Then, too, the purpose of examination of teaching personnel is to locate tuberculous lesions of the lungs since it is from this source that infection commonly results. Extra-pulmonary lesions are not usually responsible for spread of tuberculous infections among humans.

Out of an enrollment of 705 teachers, all submitted to the tuberculosis examination. Nine

TABLE 2.

An X-ray Study of the Teacher Group
Macon County Schools—1935
(Summarized)

Ages	Sex	Number of Adults (Ages 21-78)	Examined (Roentgenograms) No.	%	Diagnosis: Active	Inactive	Infection*	Non-Tbc. Pulm.	Cardiac
20-40	F	384	384	100	6	6	165	0	22
	M	85	85	100	1	2	28	5	8
40-60	F	152	152	100	2	5	87	3	4
	M	60	60	100	0	3	24	2	8
Over 60	F	15	15	100	0	3	5	2	3
	M	9	9	100	0	1	6	1	4
All ages	F	551	551	100	8	14	257	5	29
	M	154	154	100	1	6	58	8	20
705	100	9	20	315	13	49	Total					705

and Calcified Tracheo-Bronchial Lymph Nodes.

*As evidenced by Healed Ghon Foci (Single or Multiple)

TABLE 3.

An X-ray Study of the Teacher Group
Macon County Schools—1935
(Tuberculosis Findings—Statistical)

			Manifest Tuberculosis							Infection*			
			Active				Inactive						
Ages	No. Examined	Sex	Minimal	Mod. Adv.	Advanced	All Stages	Fibro-Calc.	Healed Miliary	Total	Ghon Focus	Multiple Ghon Foci	Calc. Lymph Nodes	Total
20-40	384	F	3	3	0	6	5	1	6	93	44	28	165
	85	M	1	0	0	1	2	0	2	18	2	8	28
40-60	152	F	0	0	2	2	5	0	5	47	21	19	87
	60	M	0	0	0	0	3	0	3	14	7	3	24
Over 60	15	F	0	0	0	0	1	2	3	4	1	0	5
	9	M	0	0	0	0	1	0	1	5	1	0	6
Total	705		4	3	2	9	17	3	20	181	76	58	315
Percent	100		0.6	0.4	0.3	1.3	2.4	0.4	2.9	25.7	10.8	8.3	44.7

*As evidenced by Healed Ghon Foci (Single or Multiple) and Calcified Tracheo-Bronchial Lymph Nodes.

(9) cases (1.3%) of active pulmonary tuberculosis were discovered (Table 2). Of these, four were "incipient"; three were moderately advanced; and two presented lesions that were "far advanced" (Fig. 1). Twenty (20) teachers showed definite adult apical tuberculosis of the parenchyma (re-infection type) which appeared to be well-controlled inactive. Parenchymal lesions totalled 4.1% (Table 3) which finding was considerably higher than that noted by Myers[11] who examined 3,626, of which 1,103 were not given x-ray examination for the reason that they were "negative" to 0.1 mgm. of old tuberculin. The findings might have more nearly approached those of this study had it been possible to retest the 49.9% of negative reactors with 1.0 mgm. old tuberculin. The mortality rate from tuberculosis in Macon County for the year 1934 was 35.9 per 100,000 so that the incidence rate of 1.3% for this group is approximately that to be expected.

Out of the cases found, eight (8) were hospitalized and one (1) resigned from school and left the county. The teacher who did not accept hospitalization was diagnosed by x-ray five years before as a "far advanced case." She had taught the first (primary) grade for 3½ years. Because of the lack of cooperation in the case of this teacher, it was decided to tuberculin test her school, including the grades which she had taught. Two hundred and fifteen (215) grade school children received the test, of which 29.2% reacted positively to 1.0 mgm. O. T. The first grade showed 40.0% reactors as compared with 8.6% among the third grade pupils. X-ray examination disclosed 13 children with active tracheobronchial tuberculosis; two with quiescent hilum tuberculosis; while one child, six years old, was found suffering from a unilateral tuberculous bronchopneumonia (Fig. 2) for which sanatorium regime was at once instituted.

Inasmuch as all new teachers will be required to submit evidence of physical fitness and all those under the age of 25 will have re-examinations on an annual basis, automatic certification as to freedom from active pulmonary tuberculosis should result. Lawrason Brown[14] holds "that evidence of pulmonary tuberculosis which is going to occur later in life can usually be detected by careful roentgenological study before or at the twentieth year." More recently, he has extended this time to include the twenty-fourth year. In our own experience, we have only in a single instance been able to demonstrate an active tuberculous lesion of the lungs occurring in the individual whose roentgenogram made at age of 25 or later revealed no manifest parenchymal lesions of re-infection type of tuberculosis.

The educational, preventive and case-finding values of this survey fully justified the expense.

Summary.—An x-ray film study was made of the school teachers, Macon County, Illinois. Seven hundred and five (705) were filmed, of whom 9, or 1.3%, were found to be actively tuberculous. The findings, of course, indicate that the school teacher has no more tuberculosis than the average adult. Her infection menace to the school child rests upon the fact that, next only to the family, she provides greatest opportunity for close, prolonged contact. Requiring the teacher to provide a health certificate, to include chest films, would serve to remove this reservoir of infection.

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DISCUSSION

Mr. B. K. Richardson, Springfield: It might be of some general interest to know there has been introduced in the current session of the legislature a bill which would require all school teachers to pass a medical examination, with particular reference to tuberculosis, before being permitted to teach in the schools of Illinois. The bill last week passed the second reading in the House, which is doing very well for a bill of that character in this present legislature. I don't know how much the work at Decatur had to do with the introduction and the carrying forward of that bill.

SHORT WAVE THERAPY IN ACUTE INFLAMMATIONS ABOUT THE HEAD AND NECK

M. H. Cottle, M.D.

CHICAGO

Heat therapy is now commonly employed in everyday medical and surgical practice. Its value in the resolution of inflammatory conditions is universally recognized. During the past two decades improved methods of electrically produced heat have been advanced which have led the profession generally to regard this subject with increasing interest.

Heating sources such as the incandescent carbon lamp, the infrared generator, the high frequency apparatus, the electric blanket, and now short wave equipment, are developments of electro-medical research which have made possible newer experimental therapy. As evidence of what has been accomplished one need only point to the results of artificially produced fever in dementia paralytica, in multiple sclerosis, and in other hitherto incurable conditions. The field of heat therapy is being extended, and although comparatively slow progress has been made with these newer procedures in ophthalmology and in otolaryngology, investigations now in progress promise revelations in the near future.

DIATHERMY

With reference to the various electrical means of heat production for therapeutic purposes, this paper must of necessity limit itself in scope. Before, however, pointing out the merits of short wave therapy, with which this presentation is mainly concerned, it is deemed appropriate to trace briefly the progress of high frequency currents or diathermy. D'Arsonval's[1] experiments first demonstrated the possibilities of generating heat electrically for therapeutic purposes. During the half century which has since elapsed, workers have been engaged in nearly every field to prove that such heating is superior to the older conductive and convective methods.

While the effects of diathermy are now no longer doubted, especially deep heating, it was necessary to provide proofs of this by experimental and clinical studies. Hollender and I[2] demonstrated the superiority of diathermy over other heating agents by animal experimentation. The accompanying table shows the comparative results of applying heat to the head by means of various sources, including diathermy.

TABLE 1

Eye Experiment 1.

Time	Start	Diathermy High Voltage, 400 Milliamperes Temps. Measured Outside of Line of Current	Carbon Filament Lamp at 12 In. and Hot Wet Dressing at 136 F.
Under lid	96	112	108.5
In vitreous	97.5	110	105.0
In orbit	98.2	105	101.0
Rectal	98.8	100.5	99.4
Surface	90	111.6	134.6

From tbe Department of Pbysical Therapy with tbe Cooperation of the Eye, Ear, Nose and Tbroat Departments, Cook County Hospital.

Read before section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 22, 1935, at Rockford.

TABLE 2

Eye Experiment 2.

Time Start	Incandescent Lamp After 8 Minutes		Diathermy Low Voltage, 250 Milliamperes, Temps. Measured in Line of Current After 10 Minutes
Under lid.....94	107	S	104.7
In vitreous ...94.5	102.5	T	103.0
In orbit 96.5	99.5	O	102.4
Rectal 97.5	98.7	P	99.5
Surface 84.2	125.6		100.0

These experiments have been repeated by other workers and the results corroborated. In this connection, in particular, the studies of Moncrief, Coulter and Holmquest[3] are of special interest. While these investigations were conducted primarily with respect to the eye and the ear, this information proved of value when applied to the treatment of other organs.

Indications for Diathermy and Radiathermy.—The superiority of diathermy over other heating agents led to its extensive utilization in chronic conditions. Most clinicians feared to apply it in locked-in acute suppurations although such limitation has never been demonstrated to be scientifically or clinically sound. This contraindication, however, has been so thoroughly impressed upon those working in physical therapy that few have attempted to deviate from the rule. In the treatment of acute nasal accessory sinus disease, for example, diathermy is of definite benefit in relieving pain and retarding the progress of the infection as those who have had experience in this work will confirm. As regards radiathermy it may be used to combat diseases heretofore treated by diathermy, and in addition, all types of acute suppurations. These include abscesses, furuncles, carbuncles and phlegmons involving the skin or mucous membranes.

Advantages of short wave therapy over diathermy in ophthalmology and in otolaryngology can be attributed to the greater facility of application. There is obviated the difficulty of close electrode approximation to the part, a factor which with diathermy frequently contributes to great discomfort and occasionally to skin burns.

Those who are interested in the various phases of this subject, especially technic, should refer to a recent article by Kobak[4], of Chicago, who first suggested the term radiathermy as most appropriately descriptive of this newer therapeutic agent.

RADIATHERMY

Radiathermy differs from diathermy not only in physical properties but also in practical application. Radiathermy can be applied to the body as a whole or to any part of it. The frequency varies from 10-100 million times per second as compared to one to two million frequency of diathermy, and the wave lengths are, therefore 10 to 100 times shorter. The radio currents pass through the body without the need of good, firm, electrical contacts as are required with diathermy, and as far as deeper heat effects are concerned, these are enhanced when the electrodes are separated and spaced from the skin surface by insulating substances such as rubber, glass, and even air. Tissues are heated to different degrees according to their specific inductive capacity and not in proportion to their resistance as is the case when diathermy is used. Certain tissues therefore are heated by radiathermy which probably would not be by diathermy. It is these facts which render radiathermy so applicable to acute conditions about the head and neck.

Bordier[5], Pätzold[6], Kowarschik[7], Liebesny[8], Kobak[9], and Bierman[10], working in the more general fields of medicine, have laid down the principles governing the application of short waves. German workers have been incited to enthusiastic reports of their work, and in their efforts to explain all that they have learned, they have submitted many controversial explanations and claims. The chief of these are that short wave diathermy has:

1. A greater and more uniform penetration of heat into the body;
2. A specific selective thermal action;
3. A specific biologic action; and
4. A specific bacteriacidal action.

While these claims are not new they carry us far afield. In 1896 d'Arsonval with Charrin reported that the lethal action of diphtheria toxin could be attenuated by means of a high frequency current without a rise in the temperature of the medium. Mortimer and Osborne[11], having closely studied these claims, contend that they are controversial. Whatever will be the final outcome of this controversy, the following statements are accepted as true:

1. Short wave apparatus can produce

heat in the body or parts of the body when the current traverses the part.

2. Electrical contact such as used in ordinary diathermy is not only unnecessary but undesirable.

3. The heat produced can be localized by the proper selection and placing of electrodes.

4. With proper technique, treatments can be given with reasonable safety.

My own observations, based on an extensive clinical study, not only substantiate these statements but also establish that:

(a) Short wave diathermy is especially well suited for the therapeutic application of heat to the head and neck.

(b) It will materially shorten the treatment period as compared with the time required by other heating agents.

CASE REPORTS

To point out some of the results obtained by radiathermy, the following representative case reports are of interest:

Case 1. M. K., aged 20 years, received a blow to the right eye while playing basket ball. In addition to a typical "black" eye, there was a very marked swelling involving both lids accompanied by pain. The response to radiathermy was remarkably prompt. Within 24 hours the swelling was practically gone and the pronounced discoloration was distinctly improved within 48 hours.

Case 2. B. S., aged 21 years, had for 24 hours a painful swelling at the outer canthus of the right eye. I considered this a stye of the right upper lid which was not pointing. An application of radiathermy was followed in 12 hours by discharge of pus and complete relief of pain. Though the swelling was still visible all tenderness was absent.

Case 3. Mrs. R. S., aged 55 years, had a subacute irido-cyclitis with marked vitreous haziness and posterior descemetitis. Three weeks of treatment produced no change in visual acuity and only a slight difference in the gross appearance of the eye.

Case 4. J. D., colored, aged 56 years, absolute glaucoma. Left eye tension always around 80 Sch., this in spite of operations for the relief of tension. At the end of two weeks of radiathermy the tension had gradually diminished to 32.5 Sch., while the right eye with a tension averaging 30 remained the same.

Case 5. J. C., male, aged 38 years, had traumatic cataract in the left eye. A preliminary iridectomy performed April, 1934. Since then the eye was never free from injection. Frequently there was severe pain. Salicylates and heat were ordered. Condition was held under control with great difficulty until short wave therapy was started in February, 1935. After one week the eye became quiet and painless and has remained so excepting for a single remission which only lasted 12 hours.

Case 6. Mr. W., aged 70 years, refererd by Dr. H. G., diagnosis absolute glaucoma in the right eye. Patient could not keep lids open without effort for 1½ years on account of painful spasm and general discomfort of eyes. Within 48 hours after treatment with radiathermy patient reported marked relief.

Case 7. M. C., aged 6 years, following acute sinusitis developed a very large tender swelling of the deep cervical glands on the right side. Radiathermy was applied and 24 hours later the swelling was much more marked. Treatment was repeated, but this time was followed by subsidence, which became almost complete within seven days.

Case 8. V. H., aged 20 years, with a large submaxillary gland enlargement on the left side following acute upper respiratory infection, showed a marked increase in the swelling following the administration of radiathermy. Subsequent treatment was followed by prompt and marked improvement of the swelling and also of the attendant pain and discomfort.

Case 9. A. S., female child, aged 7 years, admitted with a diagnosis of cellulitis of the right submaxillary region that had been progressing under the usual treatment to a condition for which immediate operation was considered. The patient was gravely ill with constitutional symptoms which caused the operation to be delayed. Radiathermy was given over the affected part for ten minutes on two consecutive days, as a result of which the swelling practically disappeared and the constitutional symptoms abated. Six additional treatments were administered.

Case 10. P. A. I., a girl, aged 7 years, admitted to hospital with a diagnosis of cellulitis of left cheek complicated by severe orbital cellulitis. This little patient was extremely toxic, the hospital record showing a typical septic temperature curve varying from 103° to 104° F., and a pulse around 130. After the first treatment with radiathermy over the affected area for ten minutes the patient became toxic, but after the second seance she was so much improved as to sit up and play. After the fifth application the entire affection became localized. A simple buccal incision, to establish drainage, was made.

Case 11. G. A., male, aged 40 years, developed acute painful swelling of the tongue following a fall. The tongue kept getting larger and finally was permanently protruding from the mouth. As a similar patient seen several weeks before had died in spite of the usual surgical and medical aid, it was decided to try radiathermy.

Improvement was noticed after 48 hours and marked relief was effected within seven days.

Case 12. G. N., aged 11 years, following an acute

cold developed pain over the right side of the head and a swelling of the right eye. Temperature was of septic type up to 104° F. Examination revealed the lids of the right eye swollen shut, proptosis of about 1 cm., downward and outward displacement of the eye of about 0.5 cm. A mass could be felt between the eye and the floor of the right frontal sinus. Vision was 20/100. Roentgen examination revealed clouding of antrum, ethmoid and frontal sinuses. Weak adrenalin mixture was prescribed for nasal instillations and radiathermy applied over the right orbit and frontal sinus. Marked improvement was noted at the end of one week. Examination at the end of the second week showed absence of proptosis and displacement and marked improvement in the lid swelling. Vision was 20/25.

Case 13. J. D., negro male, aged 30 years, lacerated his upper lip playing on a harmonica. This soon became infected and swelled to at least six times its original size. High temperature and malaise accompanied the local condition. Treatment with radiathermy was followed by localization of infection in two days, and patient was discharged from the hospital at the end of a week generally well, but with some swelling still present.

Case 14. P. B., aged 38 years, entered the hospital with temperature of 101.2° F. and large swelling of the neck. Diagnosis of deep cervical abscess was made. After three daily treatments temperature was 99.2° F.; patient felt well and the abscess pointed and small incision made. Complete healing occurred in two weeks.

Comment on Clinical Studies.—As a result of my brief experience with radiathermy or short waves in ophthalmologic and otolaryngologic practice, I have made certain deductions:

1. The arrangement of electrodes in condenser field treatment renders possible a localized depth effect of heat, irrespective of the intervening structures, for example, the bones of the skull, since an intense effect can be produced in the bones themselves.

2. Short wave diathermy is a convenient method of deep heat application, especially in acute infections, and lends itself ideally to parts about the head and neck without some of the disadvantages of other heating agents including diathermy.

3. In all cases where other heat producing agents are indicated and therapeutically beneficial, radiathermy will bring about results in a shorter period of time.

4. In acute suppurations which eventually must be managed by incision and drainage, radiathermy will hasten the period when surgical treatment can be instituted.

5. A knowledge of correct application of radiathermy, its indications and limitations, are quite essential to safety and successful results.

CONCLUSIONS

1. Short wave diathermy is a deep heating agent suitable for therapeutic purposes.

2. Short wave diathermy lends itself ideally wherever heat is a desirable means of treatment in eye, ear, nose, and throat diseases.

3. While it is simple in application, caution must be exercised to avoid the dangers incident to any electrical procedure.

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DISCUSSION

Dr. T. C. Galloway, Evanston: Dr. Cottle is to be congratulated upon what I consider a very fair statement of a method which may be of great importance. To find a yardstick to measure such cases is difficult, and it is hard to estimate the improvement. I have watched my cases in the ward at Cook County Hospital, and it is my impression that this method of treatment marks an advance in treatment of acute, not well localized infections. The method, I think, compares very favorably with x-ray—I would not say which is better—but watching these cases the impression is rather definite that there is marked improvement over any other method of the application of heat or anything else, except x-ray. I think it does not produce any bad effects like the old diathermy. As Dr. Kobak said the effect is quite different from the old-fashioned method medical diathermy, and I have seen no bad effects from its use. Dr. Cottle is to be commended, and I hope he and Dr. Kobak carry this work further.

CAN MEDICINE SOLVE ITS OWN PROBLEMS?

BOWMAN C. CROWELL, M.D.
CHICAGO

The topic assigned to me for discussion this morning is *"Can Medicine Solve Its Own Problems?"* Not *"Will* Medicine Solve Its Own Problems?" or "Will Medicine *Be Allowed* to Solve Its Own Problems?" And so my task would seem to be that of the historian rather than that of the prophet. However, as the future is more important than the past, perhaps I may be allowed a few conjectures. Others on this morning's program are outlining the medical economic problems of today and the future, and, while it may seem mercenary, it is nevertheless true that the economic side has an all-important bearing on all phases of medical practice.

What are the problems of medicine? They are so numerous that the recital of a list of them would occupy more time than could be profitably spent on such a task. Fortunately they can be classified under a few headings as major problems and dealt with more or less en masse.

1. Deliver to the public the benefits of contemporaneous medical knowledge in the way of prevention, cure, and alleviation of illness or injury.
2. Add to the present storehouse of medical knowledge.
3. Secure to the practitioners of medicine adequate compensation.

The medical profession of today occupies a higher and more important place in the life of the community than it ever has in times past. Its progress has been continuous and the scope of its activities has been constantly enlarged. That is, the scope of activities of the profession as a whole has been enlarged, while the scope of activities of the individual practitioner has been more and more restricted through specialization. And every extension of the profession's activities or restriction of the individual practitioner's activities brings new problems to be solved. All of this progress and extension has been accomplished through the initiative and persistent efforts of the medical profession, often in the face of discouraging opposition from outside and inside its own ranks.

Read before Secretaries' Conference, Illinois State Medical Society, May 21, 1935, at Rockford.

Success in any field of endeavor is best secured through organization and cooperation. The medical profession of civilized countries has never been as well organized as it is today, and never has the necessity for cooperation been so great. Fortunately, the willingness to cooperate has never been more widespread in the medical profession than it is today, nor has there ever been a keener realization on the part of the members of the medical profession as a whole of what its problems are and of the importance of cooperative effort to retain the direction of the profession's activities within its own ranks.

By this time you will have surmised that I am taking an optimistic view of the medical situation of today, and that my answer to the question propounded in the title is to be in the affirmative. The history of medicine's progress, the character and ability of the majority of the members of the medical profession, and the present efficient organization all lead to that conclusion.

However, I am sure that a place on this morning's program was not given me in order that I might indulge solely in such generalities. A conference of men of thought and action naturally calls for the presentation of some definitely constructive thought. Let us then discuss briefly the problems of the medical profession that I enunciated at the beginning.

As a representative of the American College of Surgeons, and as one of its administrative officers, my remarks will naturally reflect the views of that organization, and especially so on the medical economic aspect. This latter has been expressed in a report that was issued in June, 1934, and which was elaborated in the inaugural address of our present president, Dr. Robert B. Greenough.

1. *Deliver to the Public the Benefits of Contemporaneous Medical Knowledge*

1. In order to accomplish this purpose there are certain requisites that merit mention in such a summary as I am attempting to present. One of the first of these is the provision of an adequate medical curriculum in the medical schools to be followed by suitable facilities for graduate and post-graduate instruction. Fortunately, no one has attempted to remove this function from the hands of the medical profession. While there are details of the medical curriculum that may require modification from time to time, on the

whole this requirement is well met in the medical colleges of this country. One item of importance may be emphasized at this point, and that is the necessity for increasing care in the selection of matriculates to the medical courses so as to assure to the profession a constant supply of ethical and competent practitioners who will maintain the high standing of the profession, and who will not allow the pressure of circumstances to lead them into unethical or unprofessional practices. You are all aware of the great contribution to American medical education made by the Council on Medical Education, Hospitals and Licensure, which is supplemented by the work of the Associated American Medical Colleges in relation to our medical educational facilities. There is still a large field open for the provision of adequate facilities for graduate and post-graduate medical instruction in this country, and I feel confident that our medical profession, through the universities and hospitals, can be relied upon to supply this need.

2. Greater uniformity in medical licensure in the different states is one of our profession's problems, and constant vigilance is here necessary in order to prevent legislatures from foisting upon the public the inefficient ministrations of the unscientific and uneducated cults. No point of attack upon the medical profession has more importance than this one, and no practitioner of medicine should hesitate to use all of his influence, individually and through organized channels, to protect the profession at this point.

3. The extent of medical science today has required the development of specialists. Herein lies a factor that has done much to complicate modern medical practice from both the technical professional and economic aspects. More volumes could be added to those already written concerning the complicating problems presented by the special subdivisions of medical practice. The necessity for the specialists is obvious. The definition of specialist and methods for recognition of the ethical and competent ones is receiving due attention, and we must hope that the various Boards that are contemplated and that have been formed will meet the requirements. Such recognition should be conferred by the medical profession itself and should be assiduously guarded from any attempt to secure anything that resembles political designation of specialists. The delivery of the services of the specialists to the public is one of our great problems. Group practice, organized clinics, and an increasing use of consultations are methods that have been devised to meet this need, and they have functioned with a greater or lesser degree of perfection. Today is not the time, nor this program the place to discuss the details of group practice, but it is pertinent to our subject to recognize the general principle that adequate preventive measures in medicine, accuracy of diagnosis, and effective advice as to treatment often require the services of more than one practitioner of medicine. The formation of group clinics is one of the means that have been devised to meet this end. Coordination and interpretation of the work of the specialists require the services of a medical adviser for the patient. Such a principle has led the American College of Surgeons to recommend special organization within staffs of hospitals for attention to cases of cancer, fractures and trauma, in order to give each and every patient the advantage of all that is known concerning their particular disabling condition by any and all of the special medical scientists.

4. We now come to the vexed problem of the desirable scope of governmental participation in health measures. It is generally conceded that protection of the public from epidemic diseases is largely a governmental function. Quarantine measures and protection of the purity of food and beverages are generally conceded to be necessary governmental public health measures. The administration of some biologic products and some specific medicaments for the prevention of disease should be *assured* by public health officials, but this does not prevent the possibility of a desirable cooperation with private practitioners in its accomplishment. The care of the indigent sick and injured is similarly a community responsibility and in general is recognized as such and is well performed. The medical and hospital care of the affluent presents no unusual community problem. It is with the class of persons of moderate means that the problem arises of how to deliver to them the benefits of contemporaneous medical knowledge. It is to this class especially that it has been proposed by the American College of Surgeons that the pre-payment insurance principle be applied in order to spread the expenses of serious illness in

small monthly payments over a number of years. This measure seems to be the most promising solution of the difficulties of this class of the population.

It was in response to a large number of requests for guidance from Fellows of our College —an international organization—and from hospitals, that our Board of Regents felt it incumbent upon itself to formulate the principles that should be followed in the practice of any prepayment plan for medical or hospital service. The principles that were enunciated were based on the code of ethics of the medical profession and were designed to protect the interests of the whole population and of the medical profession and hospitals. No plan or method of pre-payment was suggested. Rather it was recognized that in countries composed of so many diverse elements as those which make up the United States and Canada, with the population here crowded in great industrial centers, there scattered in agricultural districts, and in other places more widely distributed still over the practically unsettled and frontier districts of the North and of the West, it is not to be expected that any single national plan for providing medical or surgical service to the whole community should prove everywhere to be satisfactory. The problem is essentially a local one, to be studied and solved by the members of the individual communities, and by trial and error, if by no other means. It was emphasized that in these experiments it is of vital importance that the medical profession should take the lead.

The House of Delegates of the American Medical Association has instructed its administrative officers to study such plans and to present the results of their studies for guidance in future action.

The American College of Surgeons has taken the position that pre-payment plans of this nature should be free from the intervention of commercial organizations operating for profit, in order that the maximum amount of the fund may be available for the payment of the medical, surgical and hospital expense which is to be supplied.

A beginning of this cooperative effort on the part of hospitals in many communities has been made, and some favorable reports are being received. It is of great importance that pre-payment plans of this nature be not restricted to individual hospitals or smaller groups. They should be a cooperative community organization in order that all unfair competition may be avoided. It is further emphasied that the quality of service supplied to the community should be recognized both by the public and the medical profession as the first and most important consideration in every plan for providing more efficient service and making it available to all classes of the population.

It is difficult for me to refer to these subjects without entering into more detail concerning them than is warranted by the topic that was assigned to me, but they must be at least referred to in order to show that the medical profession realizes what its problems are and is in a position to solve them.

2. Let me now pass on to the second major problem, namely, that of *adding to the present storehouse of medical knowledge.* While all branches of science are interdependent, and a discovery in one branch may well have a marked influence on some related branch of science, the medical man can be relied upon to utilize for the advantage of the patient the discoveries in other branches of science. We need only mention as examples the work of the non-medical chemist and the physicist who have given us first antisepsis, then asepsis, our different uses of radium and x-rays, electrical treatments, artificial heliotherapy, and so forth.

Additions to our storehouse of knowledge come from that magic source known as research. This word immediately brings to the mind a picture of the laboratory and its so-called pure scientist, also of the medical school with its scientists and pseudoscientists, but I like also to grasp every opportunity of emphasizing the library as a research center and especially the record library of the hospital and of the doctor's office. A former colleague of mine used to refer to the record library as the cemetery of buried facts. Let us stimulate in all ways possible the study of records of groups of related cases in order that we may benefit from that greatest of all teachers—experience. The practitioners are becoming more conscious of the value of good records and of the value of their study in groups, but much still remains to be done to bring the forgotten facts into the foreground of memory.

While this subject of research is one of the problems of medicine it is not one that is in

danger of being taken from us by ordinary means and so we need not discuss it further this morning.

3. *To secure to the medical practitioner adequate compensation for his work.* While this is one of medicine's problems it does not remain so much under her control as does for example the subject of research.

A number of influences have sprung up which tend to interfere with the income of the private practitioner. While I cannot attempt to solve the problems that are raised by these influences, I can at least enumerate some of them and express the belief that the difficulties raised are not insuperable and that the necessary adjustments will be made.

1. There is the inroad that is being made by the endowed teaching clinic. Here is seems to be a truism that the activities of these clinics should be restricted as much as possible to truly charity cases and to only such cases as are essential to give the students the necessary material for study.

2. A second inroad is the abuse of free clinics by those who are capable of paying for services rendered. These abuses of hospital charity must be prevented as such undeserved charity is frequently given at the expense of the truly destitute. On the same basis the enjoyment of moderate-means accommodations and reduced fees in hospitals should be rigidly restricted to those of limited resources whose finances do not permit them to obtain the needed care in private practice.

3. The question of payment of physicians for the care of indigent cases in hospitals is one requiring further study. There are many instances in which the experience and reputation or teaching opportunities do not repay for services rendered, and medical service is as much entitled to community payment as is legal or other service.

I have already referred to the necessity of public health organizations cooperating with the private practitioners as much as possible in the administration of protective vaccines, sera, and so forth. The expansion of the activities of public health departments into the clinical field should be restricted to demonstration clinics for educational purposes, and to such other activities as can be made available to the community only by the use of public funds.

In conclusion let me say that such a group as I am addressing this morning did not need me to come here to tell them that medicine can solve its own problems, but it has been a pleasure for me to indicate some of the ways in which I believe some of the problems can be solved. The secret is organization, education, cooperation, and persistence.

DISCUSSION

John R. Neal, Springfield: Dr. Crowell has presented a splendid paper. The committee who extended to Dr. Crowell an invitation to appear on the program might have expressed the title of his address much more appropriately, it seems to me, by changing the first word from "can" to "will." Using the word "can" as it appears in the title expresses doubt and skepticism as to the capacity and ability of the medical profession to solve the multiplicity of problems which confronts it. If a substantial body of useful citizens endowed with the native talent and the training which characterize physicians finds itself in a world too complicated and complex to permit the approach of problems peculiar to the profession with hope and even with confidence of reasonably satisfactory solution, the future must indeed be dark not only for the medical profession but for the democratic government itself. To me there is no doubt and no skepticism whatever as to whether or not medicine can solve its problems. The question is whether medicine *will* solve its problems.

Dr. Crowell's discussion of medical economics was particularly interesting. This subject strikes at the very roots of every present-day medical problem of more than passing importance. No one, I believe, will dispute the need or the desirability of extending medical practice so that it may reach more adequately a greater proportion of the population. No one will deny that many people at the present time are unable to meet the cost of medical service which their health interests demand. How best to make essential medical care more universally available without incurring sociological and economic disadvantages that far outweigh in significance and importance the immediate health protective gains anticipated is a matter of serious debate.

The idea that modern medicine has developed into a sort of scientific magic which can almost miraculously cure and prevent illness is rapidly crystalizing in the popular mind under the influence of propaganda for socializinng medical practice. Along with this conception is shaping itself a deep popular suspicion that the organized medical profession is holding out on the public; that it wishes to guard from general knowledge for its own infinite advantage the magic secrets of the healing art. Thus has come the agitation for compulsory health insurance schemes. To students of human nature and of sociological history it must be clear that only disappointment awaits the adoption of compulsory health insurance in so far as any profound advantage to public health is concerned.

It must not be forgotten that medical care can be overdone as well as under-done. Any system that makes

medical service free to people will encourage that danger. England has experienced under the health insurance schemes of that country a vast increase in various forms of illness, real or imaginary, with no measurable improvement in the public health. Can such a state of affairs be regarded as a benefit to the public morale or as a national asset?

The practice of scientific medicine can go no faster than the advancement in public intelligence and appreciation of what the well trained physician has to offer. This Dr. Crowell very properly emphasized when he pointed out that any scheme of extending medical practice must be preceded by an educational program that prepares the soil for ethical medical service. It would seem that public health departments and voluntary health agencies have carried forward health educational programs just as fast as public assimilation will permit. Many studies have shown that local facilities for providing appropriate medical service are readily developed in every community where a popular demand is aroused for such things as inoculation against diphtheria, vaccination against smallpox, the removal of diseased tonsils and the correction of dental defects. This experience suggests that the problem of extending medical care, particularly in the preventive field, will take care of itself very largely wherever a genuine public appreciation of scientific medicine is created.

Compulsory health insurance schemes would necessarily involve political participation in a government like ours on the one hand and large sums of money on the other. This would lead inevitably to control of such a system by elected officials. Even though the letter of the law were satisfactory to the medical profession the administration would certainly cater to the votes rather than to the doctors. This has been the invariable history of social reform legislation in this country. Thus the physician would be subject to bureaucratic dictation in respect to fees as well as to practice in spite of anything that might be provided by the law.

To one who has observed the trend in legislative matters carefully during recent years the agitation for compulsory health insurance appears to be only a symptom or at least a feature of much deeper and much more significant social currents. A distinct shift away from the fundamental principles of the traditional American form of government is visible to every student of political affairs. Carried away on a wave of ill considered sentiment great masses of the people appear to be actually eager to abdicate their responsibility of free citizenship in the hope that some economic advantage will come from a concentration of power in the executive branch of government. This is seen in the clamor for fantastic schemes of old age pensions, for impracticable regimentation of industry and for various other forms of insurance and doles that must lead inevitably to strict governmental control over every activity of life as well as to severe tax burdens.

When a radio demagogue who was denied the commercial facilities of national hook-up systems is able through popular contributions to build up a net-work of his own by appealing to the prejudices and hatreds of the masses, and who can provoke the writing of more than a million letters by a single broadcast, there can be no doubt of the imminence of political changes of the deepest significance to people who believe in freedom. When the same man draws up a platform for his followers in which freedom of speech and democratic government are not so much as mentioned, it requires no profound scholar to detect a strong trend toward fascism and regimentation. For the medical profession to ally itself with compulsory health insurance schemes is to add its strength to this movement which must be combated with all the vigor at the command of intelligent citizens if we are to escape the tyranny that has already come to pass in certain European nations.

Three bills now pending before the Illinois general assembly bear particularly upon the medical problems and upon the political situation. One would set up a compulsory health insurance scheme that would concentrate administrative control in the Governor through an appointive commission. The vast sums of money which would accrue under a system of taxation provided for in the bill would be at the disposal of the commission, no member of which would necessarily be a physician. This commission would have broad powers in respect to all activities relating to medical practice among people of incomes up to $60 per week.

Another of the bills would permit any corporation to practice medicine while the third would legalize the operation of non-profit hospitals by corporations of a charitable character. Since the government has direct control over corporations the power of regimenting medical service by political officeholders would be hastened by these measures.

All three of these measures, as well as many others before the legislature, indicate the strong trend away from individualism and toward the concentration of political power by any group which might be able to grasp the economic reigns.

On the other hand a few medical societies here and there have developed what appear to be thoroughly sound and workable systems of meeting the need for extending medical service to the lower income classes. The system in Fulton County, Georgia, is a good illustration. With a premium rate of $1.50 per month per person the county medical society undertakes to provide medical service to families which voluntarily join the Medical Service Bureau, as the association is called. On the first of April, 1935, this association had been in operation for one year. At that time the membership was well above 400 and the organizing was self-sustaining. Employers, who were skeptical at first, had begun to take interest, according to a letter from the secretary. There is every evidence that the system will fulfil the needs for medical service among the low income classes in the County in a dignified way that preserves the self respect of both patient and physician. There is already plenty of laws under which the indigent can be provided with medical care.

Legislative trends show clearly that physicians may expect to have little to say in the control of compulsory insurance schemes created through legislative act either by Congress or by the State assembly. The experiences in Fulton County, Georgia, shows that local medical

societies can develop practicable systems for extending medical care so as to meet reasonably the requirements of low income groups. Whether the government will step in with a political spoils system of medical regimentation or whether the medical profession handles its own affairs will depend upon the initiative of organized medicine and upon the interest of individual physicians in their local societies and in governmental affairs.

A long time ago the son of a rich man discovered to his sorrow that husks upon which swine are wont to feed become the monotonous diet of those who accept too lightly the privileges which have been acquired through great effort by preceding generations. Under prevailing political conditions the medical profession may find itself in the shoes of the prodigal son if it sits idly on the side lines while politicians and propagandists mix the poisons of fascism. Compulsory health insurance is but one phase of the political trend which strikes at the very foundation of liberal government in America.

Robert L. Parker (Secretary, Iowa State Medical Society): Madam Chairman and Members of the Secretaries' Conference: At this time may I express on behalf of the Iowa State Medical Society the joy we had at your President and Secretary attending our meeting at Davenport a few days ago. I hope by sitting in this conference I may be able to take back to Iowa a very valuable lesson which we may incorporate in the activities of our society in which we have eighty-two per cent of our eligible physicians as members of our State Society. In our last annual session, we had thirty-three per cent of our membership registered in attendance.

I think in Iowa, because of our high percentage of membership, we have already built up the biggest fence to prevent so-called state medicine. State medicine can never enter into a one hundred per cent organized county medical society. The county medical society is the unit upon which all organized medicine depends and it is in that unit where state medicine will have its start, if it gets a start at all. So I am a strong believer in local option in more ways than one. The county society has the final word as to whether state medicine should enter into that county or not. In an agricultural state such as is Iowa, we don't have the problems you have in some of your industrial centers, but the same perfected organization in industrial centers will prevent state medicine.

L. O. Frech (Decatur): Dr. Neal referred to a medical service bureau in Georgia, which brought to my mind the fact that Illinois is not as yet overburdened with any such plans. However, I want to mention the fact that our society in Macon County was the initiator of the medical relief plan in Illinois. I do not say that in a boasting manner. The Macon Society again, I believe, is the initiator of the medical service plan in Illinois.

The bureau in Macon County has already been set up and is now functioning, but it is too new to give you any definite details as to what the function will be. It has been in operation only about three or four days, but we have been working on the plans since last January, when the society adopted a resolution to perfect a service bureau. The name of the society is the Medical-Dental Service Bureau. To give you some idea, it is an outside organization, set up by physicians and dentists. The membership is composed only of members of the two societies who are in good standing in their respective societies. It is controlled by a board of directors who are elected by the Macon County Medical Society and the Macon-Moultrie Dental Society, the medical society having three directors and the dental society having two.

This organization is set up for the following purposes: collections and ratings. I mention those first due to the fact the bureau had to be financed. It had to be organized first and financed and our plan of financing is accomplished and carried out through the collection of accounts, entailing very little if any expense to the members of the bureau in a direct way. A second function of the bureau is adjusted compensation, credit extension, also industrial contacts. We plan in the future to extend this to include health savings, which will be through the banks, also to include financing of medical accounts.

We appreciate that all of this is a big proposition, something probably far into the future but something to look to and work toward. The committees are enthusiastic. It is not a compulsory membership; it is voluntary. I shall state frankly our men were very skeptical at the beginning and some of them still are. There are still many of our men who cannot make up their minds whether it is going to be a benefit to them and their patients, but the committee believes that time will prove it will be a benefit both to the physician and his patient.

Dr. Crowell (closing the discussion): Dr. Neal has referred to compulsory health insurance. I would like to say that I have sufficient faith in real Americanism and American ideals to believe we will not have the compulsory health insurance, but that it is very necessary that such men as constitute the audience here this morning and other similar groups throughout the country demonstrate their true Americanism in order to prevent the disaster which universal compulsory health insurance would bring about.

THE POOR GALL BLADDER RISK

*Edward S. Murphy, M.D.

DIXON, ILLINOIS

This paper takes into consideration only the management of some of our difficult gall bladder problems, which are chronic and of years standing, and which are subject to acute exacerbations. Many of these are medical problems always, since they at no time become favorable surgical risks.

Preparation of Patients for Surgical Manage-

*Deceased.

Paper presented before Section on Surgery, Eighty-fifth Annual Meeting, Rockford, May 22, 1935, by Dr. David Murphy.

ment.—Obese patients are reduced in weight if possible, but their diets not too strict, and are always given a sufficient protein and carbohydrate maintenance, probably some thyroid.

Emaciated and undernourished patients, as though just recovering from jaundice—great effort is made to give them above the maintenance protein, and carbohydrate, if they will tolerate it. In these patients, we have observed that the high grade secondary anemias and the leukopenias with a very low polly index, that liver extract parenterally for a short time is of value in returning the counts to normal. Some calomel in doses of 1/10 t. i. d. and sodium phosphate is given to these patients if they will tolerate it. Calcium gluconate with some form of vitamin A is given to make the coagulation time more satisfactory.

Frequent titration of blood chemistry, especially of the N. P. N. and sugar is done. We hesitate to operate on a patient until the blood sugar is at least up to 80 mg. per 100 cc. blood. We find if it is lower than 80, in the 60's, they are bad risks because of the pancreatic complications. Such a patient is given, as a rule, deep x-ray therapy, 300 R. units at intervals of three weeks over the pancreas. Two to three such doses are given. This, plus high carbohydrate diet usually makes them fairly satisfactory risks. A patient with a high N. P. N. is an undesirable risk. In such a case the protein is not restricted and we find that the N. P. N. comes down very satisfactorily with an adequate protein maintenance. If the chlorides are low, we give Ringer's either rectally or orally.

Surgical Technique.—A splanchnic anesthetic reinforced by anterior local, plus enough nitrous oxide to produce unconsciousness. These patients are very relaxed and remain in good condition relative to the anesthetic. Usually half nitrous oxide and oxygen with 5% carbon dioxide is sufficient to maintain them so their lungs are always well blown out at all times.

An effort is made to locate the gall bladder at the time of diagnosis by x-ray with the aid of dye. In a broad chested individual with the gall bladder at the costal margin, a transverse incision is made as the method of Mayo, Robinson and Karl Meyer. In the high lying gall bladder and high chested type, the Bevan type of vertical incision is done.

The gall bladder is dissected from the liver leaving some mesentery, if possible, to cover the liver bed. The ducts are isolated and ligated by double O chromisized gut. The cystic artery is ligated with a light weight double O iodized gut. The gall bladder bed is sutured, if possible, by a double O iodized continuous suture. Most of these patients are closed tight without any drainage. Sometimes, a signal drain is put into Morrison's pouch and brought out through the right flank. More rarely, a double tube is sutured with the internal tube directly to the cystic duct stump, which is aspirated at frequent intervals. These invariably drain bile.

If there is a common duct obstruction which cannot be satisfactorily relieved, a "T" tube is inserted draining through the right flank.

If the pancreatic pathology overshadows that of liver and gall bladder, the gall bladder is then not removed but drained at the fundus, which we think is of very definite value, in that the pancreatitis is arrested sooner and the liver pathology is relieved without sacrifice of the gall bladder. These patients, we believe, do not do well if a rather benign gall bladder is removed in the presence of definite pancreatic pathology, which is foretold in a low blood sugar—because we are inflicting a surgical cholecystectomy—which has not been preceded by a physiologic one. That is, in a chronic cholecystitis, the gall bladder has been long out of function, and the biliary system has already made physiologic adjustments. All these patients are followed by deep x-ray therapy and usually preceded by it.

In general, a cholecystectomy is done when the gall bladder seems to be the primary cause and especially when it contains stones. I believe that we are more conservative about sending our gall bladder patients to surgery than we were in the past.

DISCUSSION

Dr. Lathan A. Crandall, Jr., Chicago: As one who is primarily a physiologist, I do not feel competent to discuss the surgical aspects of this paper, but the physiological indications are extremely interesting. The point which he has emphasized concerning the part played by the liver or the importance of liver function cannot, I am sure, be emphasized too much. We hear a great deal about the preparation of these patients with high carbohydrate diets. I would like to say just a word about the physiological background of such management.

In discussing the use of high carbohydrate diets, perhaps it is not sufficiently emphasized that liver function as far as we know is improved in the presence

of large deposits of glycogen. The rationale of the high carbohydrate diet I believe depends on that. It has been demonstrated many times that the liver which contains a high percentage of glycogen will detoxify better and perform its function better than the liver which contains little or no glycogen, even though there may be but a slight amount of pathologic change which is actually visible in the organ. If these patients are told to take orally a reasonably large amount of dextrose and starches and are able to assimilate them, it does not seem that the administration of any other form of glucose is necessary. Intravenous glucose would seem necessary only when the patient is not able to assimilate carbohydrate given orally. One can give larger amounts of carbohydrate orally than intravenously and presumably raise the liver glycogen higher by oral administration than by intravenous.

I am interested in the question raised concerning the low blood sugar in these patients and its significance for pancreatic involvement. I would like to ask Dr. Murphy in what respect low blood sugar indicates involvement of the pancreas. We ordinarily think of pancreatic involvement, if it goes so far as to involve the process of dextrose metabolism, as giving rise to a higher blood sugar. I wonder if a low blood sugar might be an expression of liver damage rather than of pancreatic involvement. In the presence of liver damage with low glycogen we do find commonly a low blood sugar which might account for this finding in these cases.

In this connection I would like to ask a question about deep x-ray therapy and its rationale. In thinking the matter over before coming here it was not clear in my mind just what deep x-ray therapy would be expected to accomplish. We ordinarily think of x-ray as depressive, as producing a decrease in function rather than an increase. The only instance that I know of where stimulation is attributed to the x-rays, and that is still very much in question, is in the repair of epithelial tissue. In using x-ray over a solitary gland, like the pancreas, one ordinarily finds no evidence of stimulation.

It is interesting to recall to you an article which many of you have no doubt seen, from Healy and his associates which appeared in *Surgery, Gynecology and Obstetrics*. They recently have studied similar cases at the Cook County Hospital, and have used the bleeding time after venous stasis. One of the problems met with in these cases is that they tend to bleed. The origin of the bleeding is obscure. Coagulation time measurements have been of little or no value. These workers have found that if one constricts the arm with an ordinary blood pressure cuff and raises the cuff pressure so that there is a venous congestion, and then determines the bleeding time, the bleeding time is increased in many cases of liver disease. On that basis they have evaluated somewhat the tendency of the patient to bleed postoperatively. They have further reported that the administration of large doses of viosterol, 30 drops three times a day, will decrease the bleeding time and will improve the condition of the patient to such an extent that the postoperative course is improved.

I would like to ask Dr. Murphy in that connection whether the vitamin A used was in the form of cod liver oil or one of the vitamin preparations containing vitamin D as well, since perhaps vitamin D has even more influence over coagulation than vitamin A.

Dr. John A. Wolfer, Chicago: It was my privilege to know Dr. Edward S. Murphy very well; I respected his ability and I wish to pay tribute to him as a man and skillful surgeon.

One thing I should like to emphasize is the diet of the so-called fat individual. I think many times in trying to reduce the fat individual so as to make of him a better surgical risk that we are placing him in far worse condition than when he was fat. The fat individual is not one who is over nourished. He is one who needs nourishment of a correct type. When we place a fat individual on the average reducing diet and expect him to tolerate an operation, we are stepping on our toes and walking backward. The obese patient needs scientific study and careful medical management to bring about a proper nutritional status.

The more I see of liver shock the more I am convinced that there is some unknown factor at work, because we see liver shock taking place in individuals who have a grossly normal liver. I recently had such an experience in a man who had a common duct stone with obstruction and an acute cholecystitis. His acute symptoms were allowed to subside. After he had been under observation and, what we considered, the proper management-high glucose intake, thirty drops of viosterol three times daily and calcium gluconate by mouth, he was in, what we thought, excellent condition to withstand the operation. The stone in the common duct and the gallbladder were removed and in a few hours after the operation he developed typical liver shock. It was rather a surprise to me since his liver looked normal at the time of operation. Liver shock is associated with low blood pressure. The first symptom is a fall in the blood pressure and an increase in the pulse rate. I do not know what the blood sugar is in these patients when they are approaching liver shock, whether it is low or normal. The administration of salt solution intravenously does not improve them very much. Glucose solution does not check the process. Blood transfusion apparently improves the condition for a short period of time. Keith, Huffman, and others have reported observations upon the crystalloid and colloid matter in the blood as it pertains to the retention of intravascular fluids. They believe that in shock there may be an increased permeability of the vessel walls to fluids with high crystalloid and low colloid content, therefore, introducing salt or sugar solution into the circulation will not maintain an intravascular fluid volume. They recommend that six per cent. gum acacia solution be given intravenously to increase the colloid content of the blood. My patient was given six hundred cubic centimeters of a six per cent. gum acacia solution intravenously, his blood pressure rose and was maintained and recovery ensued. It is difficult to decide an issue upon the observations of one case since

we know that occasionally a case recovers with ordinary treatment while at other times a fatal outcome is the result. We are apt to attribute success to a procedure used at the time when nature is coming to the foreground to help us out. I believe in this matter of liver shock we are still in the dark. The matter of prevention is indicated in the plan Dr. Crandall brought out. It has been suggested by Dr. Ivy and his associates that sugar, calcium, and viosterol are the three agents that help most.

One other point in the matter of jaundice. It has been our observation that when a patient is jaundiced and at the same time has no albuminuria that a high or moderately high protein diet is not advantageous. In other words, it has been proven experimentally that you can bring about a fatal issue by a high nitrogenous intake. From a clinical point of view we put these patients on what we call a basal nitrogenous, high carbohydrate diet.

Dr. George deTarnowsky, Chicago: First of all I want to emphasize the fact that the late Dr. Murphy realized the close interrelation of the hepatic or biliary duct with the pancreas. He made the statement that in all cases where clinically he felt the pancreas was the chief organ involved he did not do a cholecystectomy; he did a cholecystotomy. In February of this year I read a paper before the Chicago Surgical Society on acute pancreatitis. After the meeting Dr. E. S. Murphy came to me and said that he had been following along the lines I indicated in my paper. There is no question but where the pancreas is involved we make a mistake by doing a cholecystectomy, because the only way we can treat the pancreatitis is by draining the gallbladder.

I am not familiar with the rationale of deep x-ray therapy following these operations. I hope Dr. Murphy will be able to explain why he and his father used it. I have never used it myself. I wonder what clinical evidence they have that such therapy is of benefit to the patient.

Dr. Lathan A. Crandall, Jr., Chicago: Dr. Wolfer touched on a point of much interest to me. It seems to be quite clear that one of the important functions of the liver is to regulate the amount of blood that is circulating through the vessels. There is no question but we can have stasis in the capillaries or smaller vessels to such an extent that the circulating blood volume is greatly reduced. The regulation of the amount of blood that is actually circulating is largely carried out by the liver. The liver is probably more important in this respect than any other organ. It occurs to me that it is quite possible in these cases of liver shock that some interference with the nerve supply to the liver and some reflex effect from working in that region might very well interfere with the ability of the liver vessels to regulate the circulating volume. It might so affect them that the liver would take up a large amount of blood and store it away in the capillaries and smaller vessels. We know the liver can store away large amounts of blood and shut it out of circulation. This might explain why, in some of these patients, there is a low blood pressure that can only be brought back to normal by intravenous injection of whole blood or acacia solutions but not by saline alone.

Dr. W. L. Waner, Evanston: Last year before this Section at Springfield I read a paper on "Spinal Anesthesia" and reported upon our treatment of the poor risk gall-bladder case under spinal anesthesia concomitant with intravenous glucose. I reported 25 cases at the Springfield meeting of poor risk gall-bladder cases, over a period of three and one-half years, successfully operated upon. We have extended this series now, under spinal anesthesia, to 29 without a fatality, exclusive of malignancy. We use intravenous glucose, if the patient is a poor risk, before operation and during operation in practically all cases. In high abdominal surgical cases we do not like to have the blood pressure under spinal anesthesia drop below the patient's normal. In robust individuals and in lower abdominal surgery a drop in blood pressure of thirty points does not mean very much, but in gall-bladder cases we think it does. Three weeks ago we operated upon a woman of 69, for gall-bladder disease. She had a blood pressure of 200/100, and a badly involved myocardium. We had her digitalized before operation. On three previous occasions she had been decompensated during recent years. Under spinal anesthesia and intravenous glucose she was successfuly operated upon. We were able to keep the blood pressure up to an average of 185 mg. of Hg pressure. We continued the intravenous glucose for two days and she recovered without any complications or difficulty.

I would like to emphasize just one thing about spinal anesthesia in regard to gall-bladder surgery. Spinal anesthesia does not interfere with the normal body metabolic processes. Under ether anesthesia, and to a lesser extent the gases, the blood sugar and blood urea begin climbing immediately after the anesthesia is begun, and acidosis develops depending upon the length of the anesthesia. Under general anesthesia, acidosis, blood urea and blood sugar climb rapidly, causing a condition of intracellular acidosis. This, combined with high blood urea nitrogen, prevents the body cells from accumulating sugar and oxygen. During spinal anesthesia blood sugar is mobilized for direct food supply of the body cells and there is but a small amount of blood urea accumlating during the first six hours after operation. I have often wondered if "liver shock" and "liver deaths" might not be on the basis of the disturbed metabolism of sugar and urea just mentioned.

Dr. C. Paul White, Kewanee: I would like to ask Dr. Murphy what he thinks about the type of operation that is used in these poor gallbladder risks, and how far that might be responsible for some of the bad effects afterwards. Some time ago nearly everyone was removing most of the gallbladders. I understand in several clinics, especially in Europe, they have become more conservative in the selection of the type of case in which they do cholecystectomy. I listened to what Dr. Waner had to say; I head his paper last year. I have used spinal anesthesia in gallbladder cases by preference in most cases. In the last year I had two cases that went into this very typical shock, al-

though they had spinal anesthesia. In one we had used every precaution that we thought could be used preoperatively and still that patient went into shock and died rather promptly. The thing that I am expressly interested in, and I hope that someone will bring it out, is what is the relation of the operation itself to the liver shock that we see.

Dr. W. J. Carter, Mattoon: There have been so many questions asked that I thought I would offer my bit in the way of an answer. For the last three or four years I have been using a transverse incision for all gallbladder operations. I find that it is very much easier to handle the situation in any condition relative to the gallbladder. If the appendix is involved you cannot take care of it as well as the gallbladder alone. I make an incision over the gallbladder, extending from the midline well down to the side. The table is elevated posterior to the gallbladder thus placing the gallbladder into a position where it can be handled. You can see everything that has to be taken care of in almost every case except the very fat individual. Even in that case it is much easier to handle and it shortens your operation probably fifty per cent. The drain is very easy to place. The anesthetic I use is sodium amytal with probably a little ether.

Dr. Frank Otis, Moline: I think we should consider trauma to the liver in the light of the recently reported experimental work where a portion of the liver is left free in the abdomen. If the peripheral portion is left free in the abdomen death may not occur. but if it is the central portions death is certain from the development of a bacterial toxemia. Probably some traumatic change in the circulation may have something to do with isolating a central portion to produce the shock, like a disconnected central portion produces the shock.

Dr. David Murphy, Dixon (closing): About the effect of x-ray therapy, Doctor Murphy Senior's thought was this. In these patients with a pancreatitis, the eyelet tissue of the pancreas is stimulated to secrete more insulin, especially after surgery; the pancreas would secrete an over-dose of insulin, thus contributing to the patient's shock. Accordingly, as an experimental problem, patients of this type were given x-ray therapy. We observed that the blood sugar on these patients returned to a near normal. They, of course, were given high carbohydrate diets. We are not thoroughly convinced that this x-ray therapy is a necessary adjunct to the carbohydrate diet, but we regarded it as worth while and shall continue it until we have enough cases to evaluate our results.

We are thoroughly in accord with the glycogen content of the liver and the point Dr. Crandall brought out that a high carbohydrate diet is certainly necessary. About vitamin A, we give that in viosterol because they cannot tolerate fats. They are given viosterol and nothing else. We have not tried haliver oil.

Before I was associated with father he did all of these cases under spinal. One patient nearly died and he went back to sphlanchnic which he had used fifteen years before. I do not feel competent to answer the question about spinal anesthesia.

About liver shock, he said, "I believe Crile is right." He believed there was a stimulation of the tail of the pancreas. I know that part of this paper is the result of his discussion with you, Dr. deTarnowsky, about draining the gallbladder to relieve chronic pancreatitis. He thought it was a great error to remove the gallbladder in the presence of an acute pancreatitis.

The type of surgery used, as Dr. White says, is important. It is mostly a transverse incision but he still used a right rectus incision because in a narrow-chested individual the transverse incision is hard to work with and you have to pull on the liver more than in the other.

IS MEDICAL RELIEF A FORERUNNER OF STATE MEDICINE?

BERNARD C. ROLOFF

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Illinois Emergency Relief Commission

CHICAGO

The question in the title of this paper can be answered by the statement that organized medicine in Illinois is responsible for the operation of the Medical Relief Program and the policies under which it operates.

Lest, despite this statement, the purpose of this paper because of its title be misunderstood, let it be known here and now that the Medical and Dental Relief Department of the Illinois Emergency Relief Commission, as at present constituted, has not the slightest desire nor intention of pointing medical relief in the direction of state medicine, even if it had the power to do so, which it hasn't.

Nor is there the slightest danger that emergency medical relief will ever spell "State Medicine" so long as the medical profession itself continues as it does now, to provide not only counsel and advice but actually some considerable degree of supervision and administration to the program.

Finally, the present form of medical relief provides for the profession a proving ground, an experimental laboratory, in which may be learned by the ancient method of trial and error what are the best and the safest ways of providing medical care on a wholesale basis for the indigent unemployed.

Thus is provided for Illinois an alliance between the social engineer and the medical pro-

Read before the Secretaries' Conference, Illinois State Medical Society, May 21, 1935, at Rockford.

fession, two groups that for years have been rather far apart.

For years physicians have been blaming social workers for most of their economic ills, real and imaginery. There can be no doubt but that some of this blame is justified, but certainly not all of it. Closely analyzed, it is a question whether even that part of the blame which seems apparently justified doesn't at times boomerang back upon the physician.

For what effort has the profession ever made to educate the social worker to understand the physician's viewpoint? Frankly, the average physician is admittedly a poor salesman, which, of course, is quite understandable by reason of his ethical training. However, instead of blaming the approach of state medicine upon social workers why not try to induce social workers to understand the aims and ideals of modern medicine? Medicine hardly ever makes the effort—but instead, the profession right merrily berates social service upon every possible opportunity for working at cross purposes although both professions should recognize the fact that their ultimate aim, good medical service for all at a price they can pay, but with proper compensation for the physician, is exactly the same. Your only real difference of opinion lies not in the aim but in the method of its application.

Had the medical profession anticipated the development of state medicine sufficiently far in advance instead of leaving it to the evidently more energetic and interested lay public, the profession would not have been so inclined to attack the social service profession for usurping its prerogatives. Perhaps it still is not too late.

Social workers are often accused of fostering clinics and making "clinic hounds" out of persons who should go to private physicians. Rarely do social workers start clinics—most clinics, it must be admitted, are started by physicians and hospitals. However, once established, of course, the tendency of the relief worker is to use them on behalf of people unable to pay even if it is, as frequently happens, to the detriment of private medical practice.

The attitude of the profession towards the social worker is very fairly and honestly reflected in a statement of Dr. Charles H. Parkes, under the title "The Clinic Habit" in the April issue of the Illinois Medical Journal, wherein he says:

"With the social worker behind the steering-wheel of the Emergency Relief Administration, as now pertains in Chicago, and probably all over the country, private practice is being driven to the clinics in ever-increasing numbers, corresponding to the ever-increasing numbers of social workers."

Why is this true of Chicago when it is not true in down state Illinois? Because in down state Illinois there are no clinics. Who makes the clinics in Chicago possible and who started them? Physicians. Even in Chicago where the clinics are to be found, in February alone 1,800 of Chicago's 2,500 physicians made 46,000 home visits on indigent patients for which they were paid over $69,000, an average of $38 each. That clinic care when it does exist, particularly during hard times, actually creates a clinic habit, is not denied; that this is bad for private practice is also not denied, but that the social worker is wholly at fault is denied. The social worker, for lack of other free service, is compelled to use the clinics for her charges. Where clinics do not exist, however, she naturally relies upon the private practitioner. Control your clinics and your "clinic habit" problem controls itself. Most patients abhor clinics. If they had any choice and sufficient income to pay a fair fee, they'd gladly pay it. The fact that there are people who can pay and still go to clinics doesn't prove that everybody wishes to do the same.

The Relief Commission did not start any clinics in the State of Illinois. It did, however, withdraw its support from one right here in Rockford which was organized before relief began. But the Commission is obliged to use the public clinics when they do exist. If physicians do not like clinics it is the easiest thing in the world for the profession to do away with them or to make out of them what they want because without the physician's consent and service, clinics cannot exist. But once a clinic becomes a local resource its existence cannot be ignored.

No one, perhaps not even a physician, who above all is most interested, can know as well as a clinic and hospital superintendent what a tremendous success clinics can be in establishing in the general public an attitude of clinic mindedness which is naturally disasterous to private practice and the individual practitioner.

State Medicine then, we must conclude, has not been fostered in Illinois by the establishment of clinics. In fact, great care has been taken not to do any more than to use clinics previously

established and even now there is a trend toward limiting or defining the type of patient to be sent to established clinics as well as to avoid overcrowding those in use by sending relief clients not already confirmed clinic addicts to the offices of private physicians.

This medical relief effort, after a full year of operation, answers by means of its known accomplishments, completely the following two questions:

"Can the medical profession itself successfully devise and administer a plan, system or method by means of which adequate medical care will be provided for that part of our population which is unable to provide such care for itself? And can this be done without having recourse to the so-called system of 'State Medicine'?"

Because this essayist is personally opposed to State Medicine which regiments the profession into an army of unwilling draftees taking from each his individuality of action, his choice of patient, or his free choice of service, destroying initiative and ambition, he wishes to make it known that these are his own personal views only.

He has no desire to lay the responsibility for them upon any shoulders other than his own. He is personally convinced that to a certain extent the fear by organized medicine of so-called State Medicine is justified. But he has no doubt that the profession can find the way to accomplish all its aims after this experience with medical relief.

Proof of this premise is supplied by the complete success of the present plan of emergency medical relief in Illinois which was devised, and is now operated and administered wholly by organized medicine, through the wisdom and initiative of the Illinois State Medical Society and its appointed representatives, the State Medical Advisory Committee to the Illinois Emergency Relief Commission.

What has the social worker accomplished in connection with the medical plan? However keenly the profession as a whole may feel as we know it does, that the average welfare worker is, to use the crude phraseology of the street, just another acute "pain in the neck," organized medicine in Illinois must admit that there are social workers *and* social workers, just as there are doctors *and* doctors. For it was a social worker with an exceptionally clear conception of social values, Miss Effie E. Doan, director of the social service staff of the Illinois Emergency Relief Commission, who first conceived the idea of this present and now undeniably efficient plan of medical relief and who wisely and diplomatically induced the Illinois State Medical Society to initiate the plan, write the rules and find a way to keep its administration, to all practical purposes, within the body of organized medicine. Here was a social worker who understood medical men and medical aims, principles and ethics; perhaps partly because she herself had mothered and helped educate and seen graduate and go into the practice of medicine her own favorite nephew.

Macon County was the proving ground for a miniature of the medical plan which finally became the adopted method for dispensing medical relief in Illinois. The Macon County Medical Society under the developing impulse of Miss Doan provided the personnel and the initiative to put the experiment into practice.

When the present director of medical relief in Illinois took over the supervision of the project, he quickly realized that not only must the plan be wholly initiated and developed by organized medicine but it must be made practically self-governing. And so it was, and is.

Each County Medical Society named and provided under its jurisdiction a County Medical Advisory Committee to govern the activity within its own community. Miss Doan was clear sighted enough also to see that under each County Medical Advisory Committee there should be a worker of such caliber, understanding and training as to perform harmoniously in complete cooperation with the medical profession.

Obviously, not merely because to many of the profession rightly or wrongly, social workers were anathema when they meddled in medicine, but because this job of carrying out the details in the relief office required a more thorough knowledge of diseases and medical matters than even a so-called "medical social worker" could command, a public health trained nurse was selected in each county, insofar as such could be found locally—to become the liaison officer between the need and the service.

More than a year has elapsed since this medical plan went into effect in Illinois and in that period of time approximately three million dollars of relief money have gone into the coffers of physi-

cians, hospitals, druggists and nurses. By far the largest proportion went into the pockets of physicians. Over three hundred thousand families, 1,200,000 persons, have had the benefit of their ministrations, and morbidity and mortality rates in general in Illinois among the whole population have steadily gone down. Over fifty thousand different persons, men, women and little children, in unemployed families on relief have, during nearly each month of the twelve recently passed, had medical care as the result of this system in Illinois.

And at no time, practically speaking, has it been necessary for the director of the medical plan, the purpose of whose job is merely to represent the interests of the Illinois State Medical Society as well as of the Illinois Emergency Relief Commission and the Federal Emergency Relief Administration, and to interpret the principles and policies of the plan to the County Medical Committees, to tell any physician arbitrarily what to do—nor to attempt to exercise any power except the control of the finances so that the venture would not in any month bankrupt the Commission and would insure that the funds be used to best advantage. He, the director, is merely the servant of the State Medical Advisory Committee and a guide provided by the Commission. He interprets to the nurses in charge of the work in the counties and to the County Medical Advisory Committees, the regulations and policies and principles laid down by organized medicine's own representatives, the State Medical Advisory Committee.

True, he is often asked, especially in counties where either the medical need is greater than the average, or in counties where the plan is faltering because the local Medical Advisory Committee has not had the courage nor the initiative to manage the work properly—"how do you dare to allow a mere nurse to tell a physician, who is infinitely her superior in the knowledge of whether or not a person needs medical aid, that he cannot have a referral to attend a particular patient, or that he must strictly limit his visits?"

The fact is that the plan does not provide that the referral nurse or anyone else should tell any physician anything of the sort and when one occasionally does so it merely means that she is undiplomatic and is choosing her phraseology unwisely.

The nurse is not to say to a physician that he can or cannot do this or that. But the fact is that she must know in advance the cost of the service because the Commission itself must know each month in advance how much money is required for all the counties and once that sum is determined, it cannot permit counties to go into debt or borrow against next month's income—so it provides nominally for each county an amount of money equal to what is now an average of 75 cents per family on relief in that county per month for all forms of medical and dental care. Actually, this sum is considerably over $1.00 per family per month because, in addition to the 75 cents, other money is expended for special medical activities, such as occasional immunization programs, work relief physical examinations, work relief injuries and medical care for transients.

These expenditures bring the medical costs per month to approximately $400,000 on behalf of somewhere around 300,000 to 325,000 families. However, because organized medicine is doing this charitable work at half price the $400,000 buys $800,000 worth of medical service and the 75 cents per family actually equals $1.50.

Knowing that her monthly allowance for medical care is definitely limited and that there is no way of spending money not allocated, a nurse may have to say near the end of the month when the allowance runs low, "Doctor, I cannot give you an authorization for this case because we then would not have sufficient money to pay your bill." Or she may say, "Our funds are so low that the Medical Advisory Committee should strictly guard against recommending operations or hospitalizations or other costly medical procedures, that are not very serious emergencies." It becomes merely a matter of the Advisory Committee itself making such rules and regulations as will prevent frittering away the limited sum of money available, as is sometimes done, upon neurotic or malingering patients or on a host of minor ailments for which a normal employed family would never ordinarily seek a doctor's advice if the fee had to come out of their own pockets. Because when this happens it means that often enough there is not sufficient money remaining in the county allowance to give adequate medical care to some patients whose need is actually far more serious and acute.

Unfortunately, occasionally our nurses run short of diplomatic language and simply say,

"No, I cannot authorize medical care for this patient." We have had physicians ask this department over and over, "What shall I do when your funds run out?" We have had to say in effect, "Let your Hippocrates be your guide," or more likely "What did you do before the Commission supplied the funds; why not endeavor to get the town supervisor or the county to pay your bill and if that fails give your services free." Maybe we should simply say, "Charge it to the patient and collect when he is able to pay." There *are* no other answers.

The Commission's responsibility, it must be clearly understood, can of necessity go only as far as its limited funds reach.

At a recent medical meeting in Danville, where this writer was the guest of his excellent and amiable friend, Dr. Wilkinson, he heard the efficient secretary of your State Society, Dr. Harold Camp, discuss most exhaustively the untoward effects of the Social Health Insurance plan in Germany. He called attention to its many drawbacks among which were a terrific overhead expense culminating in many mammoth administration buildings costing millions of marks.

Consider the overhead expense of the Illinois Medical Relief Plan for a moment; just one director, working under the direction of the State Medical Advisory Committee, a stenographer and one public health referral nurse in each county and in Chicago, one referral person in each district. That is all, except, of course, the accounting service required by State Law, but which was already provided before the medical plan went into operation. Certainly there can be no comparison between the overhead Dr. Camp describes in Germany's social security plan and the plan in force in Illinois.

Of course, this is a temporary plan; here today and gone tomorrow, set up by Illinois physicians to take care of the emergency medical needs of the relief population which today forms about 15 per cent. of the general population in Illinois. It was not intended to be paternalistic and it was not intended nor does it now attempt to simulate nor stimulate State Medicine. To the extent that it should become paternalistic, to the extent that it should usurp the privileges of the family physician, to the extent that it should ever be permitted to force medical care upon all of the population and provide service for all of the minor real or fanced ailments—of all of the population—to that same degree, if it were ever to happen, would this plan become contaminated with State Medicine. But we cannot see any drift in that direction.

The plan is essentially intended to be self-governing. We repeat this. To the extent that local medical advisory committees really and actually function, completely as they should, to that extent it *is* self-governing.

True, it does not function perfectly. Our only criteria of its functioning are the figures which accumulate from the combined reports of all counties using the plan, which are averaged each month to supply a very necessary yardstick or measure of efficiency. What do these averages show?

Statistics seldom reflect the human interest back of the figures so these will be confined to the high lights.

Six counties operated under the medical plan in March, 1934.

Ninety counties operated under the medical plan in March, 1935.

The number of families receiving medical attention in March, 1935, was 309,000, as compared with 315,000 on relief, all but 6,000 being in counties under the medical plan.

The average proportion of these families referred for medical care has varied in recent months from 10 to 12 percent. for down-state counties. The average proportion of Cook County families receiving medical care in three recent months has been 19 to 21 per cent.

The average cost per case per month in down-state counties has been $5.00.

The average cost per case per month in Cook County has been $5.75.

Hospitalization and surgery have averaged one-fourth of the total cost while drug and appliance bills have taken about 6 per cent. Most of the remainder became the earnings of physicians.

During a period of 10 months, from May to February inclusive, over two and one-quarter million dollars has gone for medical care in Illinois. For the full twelve months the amount is over two and one-half millions.

Participating in this income were such proportion of the 7,500 physicians in Illinois as may have registered for medical service. Down state the proportion of physicians registered exceeded 90 per cent. The amount disbursed then per year was equal to about $500 for each physician actively serving.

While all the money doesn't go to the doctors,

the average per doctor per month is $40. In one county, at least, a certain physician was so much in demand that his earnings were $800 a month from the relief service alone. Scores of physicians are receiving $100 or more a month depending upon the number of patients who ask for them and the size of the relief loads in their communities compared with the proportion of doctors in practice there.

Paradoxically the physician whose clientele was among the well-to-do and who, therefore, did not suffer as complete perhaps a loss of income as did his colleague who had always served the poor, received a much smaller proportion of relief medical funds.

To be frank, there is a danger in this situation, not the danger of state medicine, but a danger which might as well be faced openly right here and now. I refer to the temptation which always exists where government money is involved—the temptation to raid the treasury.

While 99 per cent. of the Physicians and druggists registered for this service undoubtedly resist this temptation, alas there is still the 1 per cent. The form this temptation takes is varied. Two or three physicians in one county vie with one another to see which one writes the most prescriptions. Why? Averaging better than four prescriptions per case per call, recently one of them hit the top and wrote nine prescriptions. The patient had to bring a basket to carry the medicine home. Needless to say, the druggists were much pleased as every patient's drug bill per doctor's call, for which the doctor received only $1.00, was from $2 to $7.

In the beginning this department was under the false impression that the druggists were deliberately defrauding the Commission but it was proven to be wholly an idea of a few physicians. One druggist said when orders were withdrawn, "If you take this business away, I'll have to close my doors."

This is really a very short-sighted policy for the physicians involved unless they have an interest in the drug store, because the more money is paid the druggist the less remains to be divided among physicians. All the money assigned to a county for medical care is usually expended; hence, physicians would do well to keep drug as well as hospital bills at a minimum consistent with the patient's welfare. In one county, one out of every eight patients referred for medical care is referred for hospitalization.

This is an evil against which only organized medicine can provide protection.

One physician who is also paid as a school doctor collected his pay for examining school children and discovering certain defects sent the children home and, without notifying the parents, asked for referrals to five cases after the relief office had closed, asserting they were emergencies which could not wait until the office opened the next day, much to the surprise of the parents who swore they did not know the children were ill. Those bills were not paid.

By setting up consulting boards and insisting upon approval for each authorization for surgery and hospitalization, as well as demanding a pathological report on every case operated on, several counties reduced the proportion of so-called "emergency" operations 50 per cent. Scores of similar instances of the Medical Advisory Committees providing safeguards against "chiseling" could be cited.

Occasionally, a physician unthinkingly violates the regulation set down by the Illinois State Medical Society that proprietaries be not prescribed. Here is one pathetic if rather glaring example.

A poor client on work relief complained to the Commission Medical service that his daughter, who had spastic paralysis, was refused medicine by our nurse because her case was chronic; hence the family was struggling along on his work relief earnings of $7.50 a week trying to buy out of that meager sum a proprietary phenobarbital derivative costing $5.00 per 100 capsules. The child was in such a nervous state that the drug was required constantly, according to the attending physician. Our pharmacist, hearing of the problem involved, suggested to the physician that phenobarbital at 75 cents per 100 tablets be used in place of the proprietary drug costing $5.00 per 100 capsules. Unthinkingly, the physician had given no heed to the utter impossibility of the family spending $5.00 a week for a drug, the equivalent of which could be purchased for 75 cents.

It is much more pleasing, however, to comment upon the spendid generous whole hearted cooperation given by the 99 per cent. of the medical profession which played fair ball. Thousands of physicians have donated despite the plan, thousands of dollars worth of service for which

they wanted no pay, and ninety medical advisory committees in as many counties have unselfishly directed their energies toward providing a sound control.

Briefly what has the plan done for the physician in Illinois?

1. It has lifted much of his former charitable burden from his shoulders.

2. It has induced the patient to think first of the doctor instead of the drugstore, almost eliminating self-dosing and the purchase of patent medicines of doubtful potency and with shot gun propensities.

3. It has restored the good old art of old-fashioned prescription writing.

4. It has reduced the cost of medical care through the use of U.S.P. and N.F. drug equivalents in place of far more costly proprietaries and specialties.

5. Finally, it has given the physician assurance of regular and certain compensation for the service he renders the indigent unemployed, as well as a voice in the management and control of the system by means of which the service is given.

Summarizing, we find the answer of the profession as to what is State Medicine indicated by Dr. R. K. Packard in a recent issue of the Illinois Medical Journal, in his statement reading:

"Under Health Insurance, under State or Federal control, the free choice of a doctor is denied. Who is to determine who is to take care of your sick ones? Under Health Insurance doctors are overworked, have long hours, and have neither time nor energy left for study or research."

He also mentions the high cost of supervision of state medical care in Germany as does Dr. Camp, stating "the number employed as clerks, investigators, etc., are greater than the number of physicians employed."

Can the Illinois plan of medical care for the indigent be justifiably charged with the possession of any of these defects? If it can, then it *is* "State Medicine." But in the Illinois plan the patient has free choice, committees of physicians guide the nurses' judgment, control is wholly with the profession for indeed the profession made the rules and set the fees. Overhead, as has been shown, is exceedingly low, the physician's time is his own. The only essential difference between the normal relationship of physician and patient and what is set up in the Illinois plan is that Uncle Sam is paying the bill temporarily for those who cannot pay for it themselves.

We must agree then that not only is the Illinois plan not state medicine nor the forerunner of state medicine, but that it really provides an interesting example of how the profession itself can provide medical care for the indigent on a self-governing self-regulated and effective, efficient and humane basis.

Administration Building
Burnham Park.

DISCUSSION

C. E. Wilkinson (Danville): Mr. Roloff has covered the subject so completely there remains very little to be said in relation to state medicine. I think Mr. Roloff, in the position he has held as Director of Medical Service for the Emergency Relief, has done probably as well as any one could have done. In my first talk with Mr. Roloff concerning medical relief, he stated that he was opposed to state medicine and would co-operate with organized medicine in every way possible to prevent its bordering on state medicine. I think he has kept his promise as far as the work downstate is concerned. Of course, he had many difficult problems. He has mentioned the abuse which some of the doctors have made of relief work, also due to the fact that some people on relief have made as much abuse of it as they could, and, naturally, we would expect some criticism from the medical profession. No doubt, part of it was justified due to the program which was set up. They even criticized the State Medical Society for accepting or setting up such a program.

I do not wish to speak particularly in defense of the Council, but rather more in regard to the reaction of the Council as to the Emergency Relief work. A special meeting was called in September, 1933, to consider Rules and Regulations Number 7, as issued by Harry L. Hopkins, Federal Administrator of Emergency Relief for Unemployed. Dr. Packard, Chairman of the Council, in stating the purpose of this meeting, said he thought this was the most important question brought before the Council in a long time.

For the first time, organized medicine was recognized by a ruling from the Federal Government; this set-up ordered the work to be carried on through organized medicine. It also made it definite that medical relief was an essential, along with food, clothing and housing.

One of the first questions considered by the Council was: Would this emergency relief be state medicine? There was much discussion. The Council finally decided, since there was a provision that the patient had the privilege of selecting his own family physician, and that the work was to be under the control of a medical advisory commission, not only representing the state but each county to have a medical advisory commission, that the set-up was not state medicine. After

this discussion, the Council accepted Rules and Regulations Number 7.

The Chairman of the Council appointed a medical advisory commission for the Illinois State Medical Society with Dr. Neal as Chairman, with Doctors Kruescher, Cook, Munson, Phifer, Hess and Camp. I don't think we could have had a more efficient or better commission. They devoted much time to working out a program. Of course, it was necessary to set up a fee and this was discussed very thoroughly before the Council. They had the advantage of comparing programs that were set up by other states. The Council feels that in comparison to the programs, set up by other states, Illinois has the best program.

After the Council had accepted this program, in order to carry it out, it was necessary for each County Society to accept it. Had the counties not accepted the program or made some provision for the medical relief in their county, the Illinois Emergency Relief Commission would have been forced to place physicians in such counties under a salary, and that would have been definitely state medicine.

Mr. Roloff stated in his paper that social workers did not always have the viewpoint of doctors; consequently it is very essential that the medical advisory committee or commission should be informed of any contemplated changes in the medical services. To illustrate this point, I should like to mention a fact that has recently come up in regard to the transient work in Danville, Illinois.

Mr. Daniel Sands, who is Director of Transient Activities of Illinois, was advised to cut expenses because their funds were getting low. It always happens when any expenses are to be cut, the medical services are the first to be reduced. Mr. Sands issued Bulletin Number 32, in which he stated "The medical policy of the Transient Division of the Illinois Emergency Relief Commission will be changed from that of a rotating panel which provides medical care for the men in our shelters to the plan of engaging a staff physician in each bureau who will be appointed at approximately half time, at a salary of $150 a month. This physician will be responsible for all the medical work in the shelters, including medical examinations and such treatment as is needed by the men resident in the shelter. It will be the responsibility of the staff physician to pass upon all referrals for hospitalization, making his recommendations to the Director of the Bureau. No hospitalization should be permitted without the approval of the staff physician."

You can readily see that while he is supposed to be on half time he is on twenty-four call because the transients are coming and going every hour in the twenty-four hours, so that he would be on call night and day. This was to be put into effect May 1, 1935. As Chairman of the Medical Advisory Committee on the Medical Services of the transients in Danville, I was called into conference with the local transient bureau to consider Bulletin Number 32. After much discussion, it was decided best to call a meeting of the physicians giving hourly services at the transient shelter. At this meeting, all the doctors were of the same opinion, that one man would be unable to render the necessary service. We had 700 or 800 men in the shelter and there were frequently seventy-five to 100 coming in each day. The set-up required that these men be examined. It required considerable work and considerable time to do that. For that reason, it was decided this could not be carried on efficiently with one man.

At this meeting, in our final talk with the local bureau and Mr. Sands' representative, a Miss King, we asked her if the State Medical Advisory Commission was aware of such a bulletin. Miss King stated that was her understanding. I wrote Dr. Neal, who immediately replied that he knew nothing of Bulletin Number 32, that he had not heard of any proposed change in the set-up. Later, in a conference with the local transient bureau and Miss King, they asked why I objected to placing a physician on a monthly salary to take charge of the work at the shelter. I told them I didn't think it was fair to the men who had given their time on hourly service to be let out at once; second, that the Vermilion County Medical Society had passed an amendment to the by-laws prohibiting any member from caring for the indigent on a salary or contract; third, for the Illinois Emergency Relief to place a doctor in the shelter on a salary would be purely and simply *state medicine*. I suggested they reduce the medical services to the minimum and operate under the old set-up, calling the doctors in rotation as was necessary.

The work in the shelters, owing to shortage of funds, practically stopped the first of May.

In conclusion, I would like to ask, who wants state medicine? The patients who are served have not asked for it. Labor organizations have made no request for it, and organized medicine is not in favor of state medicine. If the medical profession will stand one hundred per cent. with organized medicine, it is my opinion we shall not have state medicine.

J. S. Templeton (Pinckneyville): As Chairman of the Relief Committee in our county, many phases of this work have come to my attention. Being a practicing physician myself, I have done some of it as well. I would agree with Mr. Roloff this is not necessarily a forerunner of state medicine. I will confess it is somewhat humiliating for the medical profession to take fifty cents on the dollar when all around them everybody else is being paid a dollar for their services, whatever they may be. Yet the medical profession has always been known as charitable and under those conditions we must keep our reputation; this is only a temporary matter.

The medical profession, as a rule, are not satisfied with this work in the state of Illinois, and yet we do it. Just as I was leaving home, one of the prominent physicians in the county said to me, "Won't you do something to change this proposition of fifty cents on the dollar and being out of money three-fourths of the time or quit it altogether?" Having advocated it from the first, I couldn't agree to quitting this work at the present time. Yet I did say I would see what could be done.

I think our committee should be alert to making any change for the betterment of the profession. In

our county, it has been beneficial to a few of our younger men. The charitable work is usually pushed on the younger men. They get something for their services, but I don't find any inclination whatever on the part of these younger men toward state medicine, because they are getting this little fee. Rather they take the opposite attitude and say if this is state medicine they don't want any of it.

After all, gentlemen, there is just one more thing I want to say. The fundamental principle of the physicians in this state today is to avoid sending patients to one physician; in other words, that the family physician tradition may be upheld. I think that is generally carried out quite well in the counties down state. We have had two nurses in our county, both of whom have cooperated in this matter. They have not sent the poor to the physician because it was this or that man but have given them the right of choosing their own physician. For that reason, I feel this is not tending toward state medicine. If there was nothing else, we are keeping away from state medicine in upholding the tradition that every man, no matter how poor, may have a right to choose his own physician.

In my position as advocating it and being located in one of the first counties in the state to adopt it, it has placed me where I had to do some of this work to show the men I would go along with them. I advised the nurse to send to me only those who requested it. That gives me only a small part, of course, but if we can uphold the right of every man and every woman, every family, to choose their family physician, we have done something through this time of depression to uphold the traditions of the medical profession.

Edward H. Ochsner (Chicago): Dr. Wilkinson started his last sentence with the most important little word of the English language. He started it with the word "if." If the medical profession would stand together one hundred per cent. there wouldn't be any difficulty whatever. It is the small per cent. of chiselers in every profession who make the trouble for the remaining members of the profession, and I am sorry to say we have some of those in our own profession.

I remember very well when President McKinley issued his call for volunteers for the Spanish American War, he said that we need not fear any nation; if we need fear anything at all it is trouble in our own ranks, and that is where the trouble is in the medical profession. There are always a few who make trouble. How to cure those of their mental aberrations, I do not know. I shall leave that to the psychologist and the psychiatrist. I am also going to start a sentence with that important word "if." If our experience with our present set-up will teach us a lesson, it won't be time wasted. We are getting just a homeopathic dose of what state medicine is like, and if every member of the medical profession will realize that this is purely a homeopathic dose and that the real state medicine or compulsory health insurance is one hundred times worse, maybe the medical profession will wake up. This is just the prelude unless the medical profession "wakes up" and stops some of the present practices just as soon as the depression is over. If we do not have too much interference in Washington, this depression will be over, and then, if we will stand together and say that we have had enough state medicine, and we don't want any more, the medical profession will be safe. If we don't learn our lesson now, the profession will be sunk as it is in every country in the world where they have state medicine.

The last bulletin of the American Medical Association contains some very important information on the first page. The expense of manipulating state medicine is so tremendous that there is nothing left for the medical profession. When Mr. Roloff says the overhead is small, I would like to know what is big, when it is costing ten million dollars a year of our money. Perhaps his idea of small and big is different from mine, but to me ten million looks like a lot of money.

Charles Herbert Phifer (Chicago): Madam Chairman, Members of the Secretaries Conference: I wish to express my appreciation for the opportunity of hearing Mr. Roloff's paper and the discussion in reference to it. I would like to speak about one phase that Mr. Roloff has raised, namely, "What has the medical profession done to educate the social service worker?"

I personally feel that this should be given considerable thought and that the profession should not pass it by unheeded.

When the Illinois Program for the care of the people on relief was instituted in Cook County, we might say that our Society started from scratch. The Governor's Commission had named the Council of Social Agencies as their advisor on medical care in Cook County, so that any work that we undertook we had to deal direct through this organization. It required considerable time for the Council of Social Agencies to realize that we were sincere in our desire in advising in this undertaking.

The work has required considerable time as our program demands a great deal of executive work. Our committee meets every two weeks. I, personally, as chairman of this committee have spent over twenty-five hours a week in behalf of the problems in connection with the relief situation in Cook County.

The service here differs somewhat from that down state in that it was necessary for us to include chronic care. We started with a payroll of $20,000 a month. This has now increased to around $80,000. Our bills have never failed to be paid, although high payrolls threaten to disrupt the plan.

Dr. Ochsner called your attention a few minutes ago to the danger of the members of the profession defeating their own purpose We have a few chiselers who are causing a lot of trouble. It has been necessary for us to suspend several for abuse of privileges.

I, personally, believe that if a proper audit was made the work that is carried on down state would show a higher cost of medical care than that which pertains to Cook County. In fact I am informed that if it is properly compared it will show $1.55 down state and $1.08 in Cook County per family.

State medicine is a question which demands a great deal of thought on the part of all of us. It is the responsibility of the medical profession to direct the problems pertaining to medicine.

John R. Neal (Springfield): I had an interesting talk with Mr. Sands and Mr. Roloff ten days ago, in Chicago, after I received the word Dr. Wilkinson brought to your attention. At the time the Illinois Medical Society entered into this tentative agreement with the Emergency Relief that was no such thing mentioned as medical relief for transients. It has been established in one or two cities since that time, also in Chicago. Obviously the number of counties involved in this transient problem are only a few compared with the ninety under the relief plan here in the state. So your advisory committee did not feel it was its duty, in that it had not been so designed on authority by the council, to carry on any type of arrangement with those in charge of the shelters. Mr. Sands, the one who had that directly under his supervision, promulgated these orders, whatever they may have been, about putting on whole or part time physicians in each one of these shelters.

The report of the chairman of the advisory committee for the Illinois Medical Society will recommend to the council at the next meeting that the new advisory committee to be selected by the council be instructed to act in an advisory capacity for the Transient Bureau Service, the same as for the Emergency Relief, and that further the chairman of the County advisory committee in each of the counties where a Transient Bureau is located be invited to act as a subcommittee together with the chairman of the State Advisory Committee to confer on matters relative to the shelters. Mr. Sands assured me, however, less than ten days ago that there will not be a single full or part time physician appointed in these shelters until after the Advisory Committee has an opportunity of going into it further and studying the problem with him. So despite the fact that you hear of some one already appointed or selected, that is not so, because no one has been selected at the present time.

We must carry on in this work until we are quite sure it is not good and then in lieu thereof offer a better plan for the commission which is spending the money. The Advisory Committee will undoubtedly see the wisdom, after this meeting, of directing a questionnaire to each advisory committee in each county of the state, including the county officers and you as secretaries. From that questionnaire and from your concrete and definite recommendations, certainly we can evolve a right way to attack this problem. As you get these questionnaires it won't be satisfactory merely to condemn the things that have gone on in your county which you don't like. Certainly we want to evolve from that, your recommendations as to how you believe it could be bettered, but, speaking as an individual, I don't believe the Medical Society would be wise at the present time in losing contact with the hook-up we now have. Let us refine it and correct it, let us condemn the portion that is not good, but certainly we are not in position at the present moment to deny it can be worked out.

The Advisory Committee is making a report which you will receive together with the other printed reports distributed in the House of Delegates. If you are interested, you may review the report which was edited by Dr. Phifer, in charge of Cook County, together with myself as chairman of the Advisory Committee. I want to apologize for the fact that the report was written so late we merely had time to attach your names to it. If there is anything in the report with which you take issue the blame is to be attached to us as individuals. If there are parts of the report which you feel are not an expression of the Medical Society, just attribute it to the two who are chairmen of the committee and not to the other six members who have not had the opportunity of formulating this report.

DIET IN DISEASES OF THE SKIN

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Although Hippocrates was a staunch supporter of dietetics and developed the dietotherapy of wounds, we do not know of any data pertaining to the nutritional treatment of skin diseases in ancient or medieval times. There is not a single reference to this subject in any history of medicine or in pertinent dermatologic writings. Let us examine this problem in the light of modern experimental and clinical medicine in order to assign a proper place to dietotherapy in diseases of the skin.

The condition precedent of any real progress on the clinical side is an exhaustive study of the experimental side, but this was impeded for many years by the lack of precise microchemical methods of tissue examination.

The investigations of Urbach[1], Mayer and Sulzberger[2] have demonstrated that acid and alkaline nourishment changes the reactivity of the skin. This is not the same as saying that the hydrogen ion concentration and the calcium content of the skin are altered by food. The skin merely becomes more or less predisposed to irritation by external stimuli, for Edel[3], Levin and Silvers[4] showed that acid or alkaline food does not permanently alter the hydrogen ion concentration of the blood and skin, which is not a constant factor for all people. Even in the same individual the skin varies considerably from its normal state of acidity under the influence of environmental factors, especially the weather[5].

When animals are fed on oats the skin soon grows hypersensitive to stimuli and this altered inflammatory response is correctly attributed to

Read before Section on Medicine, Illinois State Medical Society, Rockford, Ill., Wednesday, May 22, 1935.

a change in the chemical structure of the skin, for marked ionic displacements are effected by such a diet. A base-forming dietary, on the other hand, renders the skin less sensitive to irritation. Also, we have recently learned that the skin is a great storehouse for sugar, for when animals are given large quantities of it the blood sugar soon returns to normal levels but the cutaneous sugar is increased for a long time.

It is a long road, however, from these animal experiments to cutaneous therapeutics. After all, a certain author notwithstanding, we are not guinea-pigs, and our constitution and environment are infinitely more complex and variable than those of an animal. Diet is only one of a number of environmental factors capable of influencing the skin, as Petersen[6] has demonstrated. I have long felt that certain skin diseases are the result of an interplay between the individual's constitution and his environment, an idea recently expressed by Darier[7]. A child may be vegetatively stigmatized at birth and such an organism with a heritage of hay-fever, asthma and vasomotor rhinitis is almost certain to fall prey to any one of several environmental factors. These factors are trauma, bacteria, foods, allergens, emotional shock, endocrine and gastrointestinal disturbances, cold, proteins, histamine and the weather, of which diet apparently plays a lesser rôle in the pathogenesis of the dermatoses. Stokes[8] has recently demonstrated that the psychic factor is of major importance in urticaria.

I repeat, we are not the same as laboratory animals and therefore we encounter numerous failures in applying the results of animal experimentation to human beings.

In the following discussion of diseases of the skin definitely benefited by diet, you will be shocked by the paucity of good results obtained by dietotherapy. Under the stimulating influence of one of the pioneer workers in this field, I have labored assiduously to treat dermatoses with diet, but I regret to say that cures have been few and far between.

Considered from *a practical standpoint,* the importance of nutritional allergy in cutaneous diseases is small. Just the other day the head of one of our largest dermatologic clinics told me that at last he had seen a patient with urticaria who was definitely sensitized to strawberries. He said that this was one of the few cases in which a food allergen had been definitely proved.

Eczema.—Great hope was entertained for the relief of eczema by diet. In the case of adult eczema these hopes have been rudely shattered and as for childhood eczema, the paucity of proved favorable reports is discouraging to say the least. For a case to be proved due to a certain food it is not sufficient to witness a cessation of the eczema when the suspected food is withdrawn from the diet. It is necessary to obtain a positive transfer of the sensitization to a normal individual by the method of Prausnitz and Kuestner. How many times has the allergist reported that the scratch tests showed positive reactions for egg white, milk or wheat in a refractory case of yours? I cannot emphasize this point too strongly, for my experience has been that scratch tests are of little or no value in detecting food allergy in skin diseases. The intracutaneous injection or inoculation in a scarification of a suspected food is no test of this substance being responsible for an eczema when ingested. Proof of egg and milk being such frequent causes of childhood eczema as is generally supposed, has not been definitely made.

In fact, in the dispensary of the Grant Hospital of Chicago, it has been our custom for years to feed eggs to infants with eczema who display a positive reaction to egg white with the scratch test. As stated above, we have discarded the scratch test as valueless because most of these infants display a positive reaction to egg white, regardless of the condition of their skin. It is our experience that these children do as well with this diet as when eggs are prohibited. The sensitization to egg is merely an indication of an allergic skin. The hypersensitivity to egg and the eczema are separate manifestations of a congenital idiosyncrasy and the egg white is not the cause of eczema. Proof of this assertion lies in the fact that neither the feeding nor the elimination of eggs seems to influence the course of the eczema. Burchard's[9] experience in Wuerzburg coincides with ours.

In a very limited number of cases it is possible to incriminate a food. But can we desensitize the patient to the specific allergen? Again, disappointment awaits us. The opinions of authorities at a recent round table discussion were almost unanimous in denying the possibility of desensitization. It has been proved that a spe-

cific antigen-antibody reaction exists in less than five per cent. of cases of eczema. Desensitization from a strictly immunologic standpoint is probably impossible. Conceding that it were possible, what physician will assume the responsibility and danger of intradermal desensitization in an ambulatory patient, which after all is the method offering the best chance of success?

When the history of hypersensitivity points definitely to a certain food the treatment of choice is to avoid that food in all forms. It is not uncommon for a patient to develop urticaria or eczema on eating tomatoes and if avoidance of tomatoes is carried out for a year or two the patient may acquire a slight or considerable degree of tolerance for them. There is a good chance that the patient will be able to eat cooked tomatoes, but he will probably never be able to eat raw tomatoes.

If a food is suspected of causing a dermatosis a good method of detecting the allergen is Rowe's[10] elimination diets. Rowe has systematized these dietaries so that it is relatively simple to run through the foods included in the average menu within three or four weeks.

Rowe has arranged four diets and each one of these is continued for seven to ten days, beginning with a diet consisting solely of milk. If the symptoms subside with this diet, each of the other dietaries is gone through until one is found that does not elicit symptoms. Every four or five days a new food is then added, at the very last wheat and eggs.

The disadvantage of such elimination diets is the matter of time, for it sometimes requires many weeks to detect the harmful food or foods.

Urbach devised a method of discovering the nutritive allergen in a much shorter period of time. Experiments showed that giving a small quantity of the peptone or food to which a patient is sensitized 45 minutes before he eats a dish of that food results in neutralization of the food's harmful action. Utilizing this fact he has prepared a number of peptones and the patient is instructed to eat only food for which there is a specific peptone, making up his diet to suit himself in all other respects. A specific peptone should be taken three-quarters of an hour before a protein foodstuff is eaten. As soon as the symptoms subside the patient continues with his diet as before, but omits a different specific peptone every day. Should itching and urticaria recur for example after eating white bread without first taking a tablet of wheat peptone, the nutritive allergen is most probably wheat.

In generalized, exudative cases of eczema it is advisable to give the patient solely milk for three days along with sufficient phenobarbital to relieve the itching. Such patients will experience great relief both from the itching and from the discomfort of applying topical medications by remaining in a tub bath for prolonged periods of time.

In infantile eczema a change to some other form of milk is made. Individualization of cases is essential and the physician should have no difficulty in prescribing any one of the numerous gruels, milks and vegetable soups. Overfed infants with cradle-cap and milk-crust should be restricted as to intake, especially water and salt. Undernourished children with a dry type of eczema do best on a high caloric diet. Older children with neurodermatitis are best treated with plenty of food, rest, quieting tub baths and above all, avoidance of disturbing habits of late hours and nervous excitement. Becker has recently made use of functional tests to demonstrate that patients with neurodermatitis are particularly unstable, nervous individuals.

Acne.—The fact that so many foods have been incriminated as causing acne speaks strongly for the innocuousness of all. Rich foods such as chocolate, cocoa and cheese usually aggravate acne. The reason for this lies in the fact that at an age when acne occurs there is a great demand for nourishment by the growing tissues of the body and the oil glands are as yet in a very unstable period of adjustment, so that an excess of food easily upsets the sebaceous mechanism. The iodine present in table salt and the potassium bromide used as a modifier in bread baking are exceptions to the above statement. There is not an iota of scientific evidence that there is any disturbance of carbohydrate metabolism in acne. It is my opinion that the ill effects of a relatively high intake of sweets and starches may be due in some instances to an idiosyncrasy in reaction towards certain specific items in the diet, but in the large majority of cases the ill effects are due rather to the increased quantity of food.

In addition to excluding cheese, chocolate, cocoa and nuts from the diet, patients should not eat much bacon, ham, sausage, goose and

fried foods in general. The value of excluding sodium chloride, as was recently recommended by Lerner[11] remains to be proved.

Psoriasis.—Most of us have at some time or other advised a protein-free diet in cases of psoriasis, but have many satisfactory results been obtained? My faith in dietotherapy for this disease was rudely shattered by my first patient. Fresh from the inexperience of medical school I made a great show of telling the patient not to eat meat and his skin trouble would quickly clear up. He answered by saying that he was a vegetarian and had never eaten meat in all his life. The latest dietetic treatment for this disease is the fat-free diet devised by Gruetz[12], who believes that psoriasis is due to a disturbance of lipoid metabolism. Our experience with this dietary is limited and it is difficult to keep ambulatory patients on such a fare. In the final analysis, however, improvement in these cases is most probably due to the loss of weight brought about by such a restricted dietary.

Rosacea.—This distressing condition is not curable by diet. Associated with a red nose, rosacea is probably due to paralysis of the vasoconstrictor apparatus controlling the capillaries and venules of the skin, possibly resulting from a focus of infection. In many of these cases I have found a marked degree of gastric hypoacidity. It is probable that hypochlorhydria and dilatation of the vessels of the skin are coordinate manifestations of a general muscular hypotonia. Such patients do well when hydrotherapy, massage and limited dietary restrictions are instituted. Very hot foods and drinks, spices and alcohol should be prohibited.

Tuberculosis.—This disease offers an encouraging field for dietotherapy, but there is one serious drawback to its use in practice. Patients with lupus vulgaris do remarkably well on a salt-free, high-fat and vitamin dietary, but it is next to impossible to carry out such a strict diet in the average home. Institutional treatment is essential.

General.—Except in acute cases with obvious etiology and in rare instances of sensitivity to a specific allergen, such as the one of strawberry sensitization cited above, dietotherapy has been more or less of a failure in urticaria. It is very difficult to track down the etiologic factor in most cases of chronic urticaria.

In generalized furunculosis, mycosis, pyodermia and pruritus an antidiabetic diet and insulin are often of great benefit. Specific diabetic dermatoses, such as gangrene and necrobiosis lipoidica, are helped a great deal by diet.

The restriction of tea and coffee in patients suffering from pruritus ani is advisable. Certain types of scleroderma are benefited by pancreas, given orally and subcutaneously.

Lesions on the lips, cheeks and tongue may indeed be a chronic herpes or oral manifestations of a gastrointestinal allergy, but in my experience it is difficult to help the patient by carrying out a time-consuming elimination diet. In such a case of herpes it is infinitely better to perform an inoculation into the skin with fluid from the patient's own blisters[13]. When the vaccination "takes," immunity apparently lasts for years.

Yellow discoloration of the skin is caused occasionally by eating large amounts of vegetables, especially carrots, spinach and lettuce, which are rich in carotin and xanthophyl. Butter and egg yolk are also lipochromatic foodstuffs.

There are some cases of inflammation of the skin caused by eating foods containing photodynamic substances. Buckwheat is one of these substances. Certain individuals will develop an eruption if they go out into the sun after eating some buckwheat. A condition known as Rhiel's melanosis was common among civilians in wartime Vienna, the cause being a bread containing a photodynamic material.

I am reserving, as a place of honor, this last paragraph for the deficiency diseases, such as pellagra and scurvy. The brilliant effects of diet in these conditions are too well known to require comment at this point. But I would like to call attention to a few cutaneous abnormalities which are apparently caused by a deficient amount, rather than by a lack of vitamins. These conditions of hypovitaminosis are exhibited as a dry, scaling skin along with follicular papules, teeth and nail changes. The future will undoubtedly reveal many more of these border line manifestations of vitamin deficiency.

Conclusions.—I have made an attempt to obtain a clear idea of the value of diet in diseases of the skin. A few pertinent experimental data are presented and when these facts, discovered for the most part in experiments on animals, are applied to the treatment of human beings,

we are astonished at the results. I do not want to be understood as denying the effect of diet in various dermatoses, but certainly a sharper line should be drawn between what is proved and what is not proved. The picture of medicine dealt with by the laboratory worker is that which is deployed before his senses at a given moment and it is one of the tacit, but none the less firm presuppositions of research that experiments are the same for every individual and for all times. This is certainly not true in the case of dietotherapy in cutaneous disorders. I have tried to show that eczema and urticaria may be caused by a certain food in one season, whereas when that food is given in another season under different conditions of climate or nervous tension, no skin disease occurs. The constellation of environmental factors may completely alter the reaction of the skin to foods. The results of animal experimentation cannot be transferred unreservedly to human beings.

What is called the art of medicine has as its basis an indescribable sensitive faculty of perceiving the individual as a whole. The physician should consider not only each of the environmental factors comprising the totality of etiology and treatment, but even more, the relative importance of these factors to each other. Considered in this light, I cannot assign an important position to dietotherapy in the pathogenesis of diseases of the skin.

122 S. Michigan Ave.

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DISCUSSION

Dr. Arthur W. Stillians, Chicago: The dermatologist must agree with Dr. Schmidt in his somewhat discouraging outlook on the effect of diet. My experience with psoriasis has been a similar one. The low fat diet I tried recently with an effort to furnish calories in the diet sufficient to keep up the weight of the patient, and I think that should be done in all except overweight patients. The diet seems to me a dangerous one if the patient is allowed to continue without supervision. I have not had any startling results, I must confess.

The Gerson low sodium chloride, high vitamin diet I think is of some value, even in ambulatory patients, if the wife or cook is of superior intelligence.

Acne I know is made worse by diet. I go out to the Municipal Tuberculosis Sanitarium in Chicago and every time I go I see dozens of cases of acne and seborrheic dermatitis that have occurred since the patient entered the hospital. The fattening diet they have out there makes these conditions common. Whether there is any one factor in the diet that has an effect I do not know. I have not been able to get any evidence in favor of this theory. The trouble is that we need a lot more experimental work. Calcium in the blood has been worked on a great deal without much benefit. The study of calcium and sugar in the skin may be of more help to us.

I agree with Dr. Schmidt in his demand for more scientific work, for better proof of the effect of poor diet before we can expect much in the way of therapy.

THE GERMAN MEDICAL REPORT OF THE WORLD WAR

The official German sanitary report of the World War, 1914-1918, as prepared by the Heeres-Sanitäts-Inspektion des Reichswehrministeriums, has begun to be published. Volume III, which has just appeared, gives a survey of the number of persons killed, wounded and the victims of disease among the participants in the war. The number of medically treated wounds and illnesses amounts to more than 27,000,000. The details of the survey are based on the utilization of the huge mass of statistics contained in the official lists of the dead, and in the medical reports of the troops and the hospitals of the army in the field and the army of occupation. From September, 1918, on, however, the reports are incomplete because of the revolutionary disturbances.

The total number of war participants in the army (exclusive of the marine and the protective forces in the colonies), up to the end of July, 1918, was 13,100,000, or, if the 1900 levy, which had been called to the colors, is included, 13,300,000. During the four years of the war the average number of effectives in the army in the field and in the army of occupation was 6,372,000. Up to Dec. 31, 1933, (that is, including delayed reports), the total number of persons killed in action and dying from all causes is placed at 2,036,897. Of this number, 1,900,876 were killed or died during the war or during the border struggles in the east, 34,836 in the navy, and 1,185 in the colonies. In addition, 100,000 were reported missing, being presumably dead. The loss of human life is increased, in one sense, by the resulting diminution of births, which for the

present territory of the reich is placed at 3,000,000, and at 3,500,000 for the prewar territory.

The number of persons totally blind as the result of war injuries was 2,734. The army in the field had 4,814,557 wounded men during the four years of the war.

GLANDULAR PHYSIOLOGY AND THERAPY: THE PHYSIOLOGY OF ESTROGENIC PRINCIPLES

Edgar Allen, New Haven, Conn. (*Journal A. M. A.*, April 27, 1935), stresses the following points in the physiology of estrogenic substances. First, as a major objective, the fundamental endocrine mechanism of the estrous and menstrual cycles has been demonstrated. Active hormones have been isolated and their relation to one another partially worked out. Second, incidental to the first point, the reaction of the rodent's vagina has provided a practicable test for the biologic standardization of therapeutic products, and these have now replaced the inert gland extracts previously in wide clinical use. Third, the extension of the test to carcinogenic substances and to other substances of similar chemical structure from a wide range of sources is extremely important. In description of some of the carcinogenic and estrogenic substances, the time interval required may be considerably greater than that required for the growth phase of the estrous reaction to theelin. The reasons for variations in the time of reaction are not clear. It is not yet known whether some of the related substances included under the term "estrogenic" will produce more than the vaginal growth reaction. Few of them have been tested as to value in replacing other phenomena of estrus or menstrual phenomena in primates.

This mother's fine frankness about her mistake shows quite clearly the terrible cost of what seemed like a simple way to save expense.

If her son had been immunized against diphtheria when he was still a baby, in all probability he would never have had diphtheria.* If she had summoned the doctor at the first sign of illness, diphtheria antitoxin would in all likelihood have prevented a serious sickness.

Treatment by home methods is seldom wise—seldom economical in the end. Only through a long course of study and through experience has your doctor learned how to diagnose and treat disease—so how, can you or any of us, expect our amateur observation to take the place of his scientific knowledge gained in classroom, laboratory, hospital and daily practice?

When illness comes, time is precious. See your doctor—the one man who really knows what to do—and see him at once.

*Children who were not immunized in infancy should surely be immunized before they start going to school. Consult your family physician.

BACK TO NORMAL

Nurse—"I think he's regaining consciousness, doctor; he tried to blow the foam off his medicine."

MacPHERSON TO MacTAVISH

One Scotsman complained that he had a ringing in his head.

"Do you ken the cause of that?" asked his worthy crony. "It's because it's empty."

"And have ye never a ringing in your head?"

"No, never."

"It's because it's crackit."

A SAFE BET

Mrs. Brookline: "I understand the Eskimos are very keeen domino players, and sometimes bet heavily, even putting up their wives and losing them."

Mr. Brookline: "Well, I'll bet there are a lot of good losers among the Eskimos."

ON HIS SNEEZE

St. Peter—"How did you get up here?"

Latest Arrival—"Flu."

Flock of professors are experimenting with monkeys, trying to give them an education. It ought to be easy to get them to go through the higher branches. —*Jacksonville (Fla.) Times-Union.*

"A vegetarian diet is best for those who would be beautiful," we read. Well, it does not seem to have done much for the elephant.—*Punch (London.)*

"Here the Martin Johnsons are coming back again, and I haven't a new thing to wear."

Society Proceedings

BUREAU COUNTY

Bureau County Medical Society will hold its first fall meeting at the Perry Memorial Hospital, Princeton, October 1, according to announcements sent out by Dr. C. R. Bates of DePue, Secretary.

A dinner will be held at the Perry Memorial Hospital at 6:15 o'clock and this will be followed by the scientific program to be presented by two Chicago physicians. Dr. W. A. Newman Dorland, author of the *Medical Dictionary* and a Diplomate of the American Board of Obstetricians and Gynecologists, will speak on "The Origin of Ovarian Tumors." Dr. Frederick R. Schmidt will give an illustrated lecture on "Nutrition and Skin Diseases."

Physicians of this section of Illinois are cordially invited to attend this important meeting and take part in the discussion of the two papers.

Marriages

Walter Prusait, Chicago, to Miss Leona Schupmann of St. Louis, July 25.

Carlo S. Scuderi to Miss Alice Kathryn Regan, both of Chicago, July 31.

Adolph Allan Smolen to Miss Mildred Gerber, both of Chicago, July 7.

Personals

Dr. Sarah A. Pearl will present a paper before the Chicago Council of Medical Women, October 4, entitled "A New Active Principle of Ergot and Its Clinical Significance.

Dr. Frank H. Lahey, Boston, will address the North Side Branch of the Chicago Medical Society, October 3, on "Newer Aspects of Hyperthyroidism and Hyperparathyroidism, Together with a Consideration of Total Ablation of the Thyroid."

Dr. Leon Unger, Chicago, discussed hay fever before the Kiwanis Club of Harvey, July 23.

Dr. Joseph L. Bryan, Xenia, has been appointed health officer of the district including Clay, Effingham, Jasper and Crawford counties.

The Henry County Medical Society was addressed by Drs. Samuel M. Feinberg and Géza De Takáts, Chicago, at Geneseo, July 31, on allergy and treatment of varicose veins, respectively.

Dr. Max S. Wien, Chicago, addressed the Stephenson County Medical Society at Freeport, August 28, on "Relation of Dermatology to General Medicine."

Dr. Hugh A. Beam, Moline, has been appointed medical director of the Rock Island County Tuberculosis Sanatorium, succeeding the late Dr. Arthur T. Leipold, effective August 1.

Dr. Olin T. West was the guest speaker at the September 23 meeting of DeWitt County Medical Society.

Dr. Robert S. Berghoff addressed the Elmhurst Hospital Staff on "More Common Forms of Heart Disease," September 24.

Dr. Abraham Levinson was invited to give a paper on "Poliomyelitis" before the Will-Grundy County Medical Society at Joliet, September 25.

Dr. Cleveland J. White addressed the staff of Westlake Hospital at Melrose Park, September 25.

Drs. Edward L. Cornell, Charles E. Galloway and Irving F. Stein presented a program on obstetrics before the LaSalle County Medical Society at Ottawa, September 26.

Dr. Bernard Kleinman addressed the Community Welfare Club on West North Avenue, September 16, on "Heart Disease."

Dr. Channing W. Barrett announced the removal of his office from the Marshall Field Annex Building to the Henrotin Hospital, 115 West Oak Street.

Dr. Max Thorek addressed the American Congress of Physical Therapy in Kansas City, Mo., September 11 on "Electrosurgical Obliteration of the Gall Bladder."

The Chicago Society of X-Ray Technicians will hold their monthly meeting on October 3 at the North Side Y. W. C. A., 1000 North Dearborn Street.

Dr. Erwin P. Zeisler read a paper on "The Treatment of Acne Vulgaris," at the American Congress of Physicial Therapy, Kansas City, September 11.

Dr. Frederick B. Bahmer addressed the Fort Wayne Medical Society, September 17, on "Essentials Every Physician Should Know."

Drs. Wm. R. Cubbins, George H. Gardner, Wm. H. Holmes and John A. Wolfer presented the program at the Annual Meeting of the Utah State Medical Association at Logan, Utah, September 5, 6 and 7.

They also presented the program at the Annual Meeting of the Idaho State Medical Society, September 9, 10, 11, 12 and 13.

Dr. Max S. Wien addressed the Stephenson County Medical Society at Freeport, Illinois, August 28, 1935. His subject was "The Relation of Dermatology to General Medicine."

The first meeting of the Cook County Physicians Association was held September 22, at Provident Hospital. "Collapse Therapy" was discussed by Drs. Payne and Dawson, and Reports made of the National Medical Association held in New Orleans.

Dr. Max Thorek will be guest speaker of the Pennsylvania State Medical Society on October 2 at Harrisburg, Pa. His address will be on "Rationale of Electrosurgical Obliteration of the Gallbladder (an Experimental and Clinical Study of 144 cases)."

News Notes

—Officers of the Chicago Urological Society elected at the recent annual meeting are Drs. Benjamin E. Fillis, president; William J. Baker, vice president, and Colquitt Otis Ritch, secretary.

—A symposium on the present concept of focal infection was presented before the Chicago

Dental Society at a meeting, September 17: speakers were Dr. William P. Murphy, Boston, Boyd S. Gardner, D. D. S., Rochester, Minn., and Dr. Lloyd L. Arnold, who presented the views of the internist, dentist and bacteriologist, respectively.

—Tests on 3,837 persons at the recent state fair in Springfield showed conclusively that the mental processes of nearly half of them are so slow that it is not safe for them to drive automobiles at high speed. The tests were conducted by the state health department as features of the exhibit on health and safety, to determine the skill of automobile drivers. One-third of the persons tested required five-eighths second to apply the brakes on an automobile after a visual signal was given, while one in each ten tested required at least three-fourths second. The health department points out that, since at 60 miles an hour a car travels 88 feet per second, the importance of delayed mental response to an emergency situation is apparent. It further points out that motor accidents are now the cause of 2,500 deaths and more than 70,000 painful injuries annually in Illinois.

—At a meeting of the Jefferson-Hamilton County Medical Society, Mount Vernon, a symposium on obstetrics was presented by Drs. Thomas B. Williamson, Harry G. Thompson, William G. Parker, all of Mount Vernon; Frank B. Hiller, Pinckneyville, and John Beverly Moore, Benton.

—At a meeting of the Peoria City Medical Society, September 3, speakers included Drs. William A. Malcolm on endometriosis: Hugh E. Cooper, backache; Walter H. Baer, early symptoms and treatment of dementia paralytica, and John M. McCuskey, common skin diseases. Dr. Nelson M. Percy, Chicago, addressed the society, September 17, on "Surgery of the Superior Hypogastric Plexus of the Sympathetic Nervous System."

—Dr. Henri Contard, chief of the department of roentgen therapy of cancer, Curie Institute, University of Paris, will deliver the twelfth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, October 1, at the Chicago Woman's Club. The subject of his illustrated lecture will be "The Conception of Periodicity as a Possible Directing Factor in the Roentgen Therapy of Cancer." The meeting will be a joint session with the Chicago Laryngological and Otological Society.

—The illegal practice of shipping mad dog heads to state diagnostic laboratories in Springfield has grown to such proportions that Dr. Frank Jirka, state health officer, has appealed to the postoffice department in Washington for assistance in discouraging the use of the postal service for this purpose. It was pointed out that it is illegal, hazardous and nearly always worthless to ship dogs' heads by mail to the laboratories for examination for rabies; furthermore, since the heads are not in sealed metal containers, they expose postal employees to infection; not being packed in ice they decompose en route, making it difficult if not impossible for laboratory technicians to determine whether or not the dog was rabid. To date this year 559 heads have been examined, the largest number in several years, while about 1,435 persons have received antirabic treatment.

—AN OPENING FOR A PHYSICIAN: In a Wisconsin town, population 10,000 has a splendid financial opportunity for a capable, well trained internest. Catholic or Luthern preferred. E. B., care ILLINOIS MEDICAL JOURNAL.

—The September session of the Madison County Medical Society was held at the Alton State Hospital. Dr. A. A. Low, Chicago, Assistant Director of the Psychiatric Institute and Assistant to the State Alienist, was the guest speaker. He conducted a clinic illustrative of border-line neuro-pathology.

—Dr. D. D. Monroe, Secretary of the Madison County Medical Society, has opened an office in Alton.

—Mrs. Emily H. Cole, Springfield, is Executive Secretary of the Madison County Anti-Tuberculosis Association during the 1935 seal sale campaign.

—The Alton Medical Society was entertained at its regular September meeting by Dr. and Mrs. E. R. Quinn, East Alton. The guest speaker was Dr. J. Edgar Stewart, St. Louis. Subject intra-capsular fractures of the hip joint.

—The following officers were elected at annual meeting of the Chicago Society of Internal Medicine: president, Robert W. Keeton; vice-president, Sidney Strauss: secretary-treasurer, Clarence F. G. Brown.

Deaths

Emil Frederick Baur, Chicago; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; aged 67; died, August 25, in the Presbyterian Hospital of infarction of the lungs.

Austin L. Cleveland, Dallas City, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; aged 63; died, August 1, in Rockford, of pyemia.

George W. Crum, Arenzville, Ill.; St. Louis Medical College, 1874; aged 86; died, August 7, of coronary thrombosis.

Henry Thomson Cummings, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; a Fellow, A. M. A.; on the staff of the Jackson Park Hospital; aged 54; was found dead, July 30, of chronic myocarditis.

James Cornelius Gill, Chicago; Rush Medical College, Chicago, 1890; professor of clinical neurology at his alma mater; member of the Central Neuropsychiatric Association; on the staffs of the Presbyterian Hospital, Cook County Psychopathic Hospital and the Illinois Masonic Hospital; aged 69; died, July 1, in the Washington Boulevard Hospital of uremia.

Louis Adolph Grimme, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1891; a Fellow, A. M. A.; aged 70; died, July 21, of myocarditis and coronary sclerosis.

John Briggs Hagey, De Kalb, Ill.; University of Louisville (Ky.) Medical Department, 1902; member of the Illinois State Medical Society; past president and secretary of the DeKalb County Medical Society; city health officer; aged 65; died, July 29, of cerebral hemorrhage.

John W. Hermetet, Macomb, Ill.; Chicago Homeopathic Medical College, 1896; a Fellow, A. M. A.; formerly secretary of McDonough County Medical Society; medical director of the Marietta Phelps Hospital; aged 63, died, August 4, in the Memorial Hospital, Buffalo, of pneumonia.

Edward Beach Loomis, Oak Park, Ill.; University of Vermont College of Medicine, Burlington, 1870; aged 87; died, July 28, of coronary thrombosis and arteriosclerosis.

Edward McLoughlin, Chicago; Rush Medical College, Chicago, 1890; aged 83; died, July 1, in the Evangelical Hospital, of carcinoma of the intestine.

Gordon Berge McNicol, Dixon, Ill.; Northwestern University Medical School, Chicago, 1935; aged 26; died, June 26, in the Cleveland (Ohio) City Hospital, of subacute bacterial endocarditis.

Dallas Texas Odell, Christopher, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; aged 55; died, July 30.

James Henry Oughton, Dwight, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; a Fellow, A. M. A.; aged 53; was shot and killed by bandits, August 1.

Joseph W. Propeck, Oak Park, Ill.; American Medical College, St. Louis, 1882; aged 76; died, July 15, of chronic myocarditis and nephritis.

Loyal Dexter Rogers, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; Rush Medical College, Chicago, 1896; aged 78; died, July 25, in St. Luke's Hospital, of prostatitis, pyelonephritis, chronic myocarditis and hypertension.

Benedict F. Shanahan, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; a Fellow, A. M. A.; on the staff of the University Hospital; aged 63; died, August 2, in St. Luke's Hospital, of uremia.

Frank James Shook, Warren, Ill.; Rush Medical College, Chicago, 1900; aged 68; died, August 2, in St. Francis Hospital, Freeport, of cerebral hemorrhage and arteriosclerosis.

Edwin P. Sloan, since 1932 a member of the Judicial Council of the American Medical Association and from 1924 to 1932 a member of the House of Delegates, died, September 13, at his home in Bloomington, Ill., of myocarditis. Dr. Sloan was born in Neosho, Mo., Feb. 13, 1878. He received his medical degree from the University Medical College of Kansas City (Mo.) in 1898 and later studied in Berne, Switzerland, and took graduate work at the University of Berlin, Chicago Polyclinic and the New York Post-Graduate Medical School. From 1898 to 1903 he practiced in Danvers, Ill. In 1905 he settled in Bloomington, where he specialized in the surgical treatment of goiter and diseases of the stomach. He was a founder of the American Association for the Study of Goiter and a former president of that organization. He was a founder also of the International Conference on Goiter in Berne, Switzerland, and several times served as a delegate. He was a member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; past president of the Illinois State Medical Society, 1922-1923, and past chairman of the advisory board of the Illinois Department of Public Health. Dr. Sloan was surgeon-in chief of the Sloan Clinic and on the staffs of the Mennonite Hospital and St. Joseph's Hospital. He had written many articles on goiter, abdominal surgery and gynecology and had practically completed the writing of a text-book at the time of his death.

John George Tapper, Elgin, Ill.; Rush Medical College, Chicago, 1882; aged 82; died, September 10, of chronic myocarditis.

William Henry Taylor, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1904; served during the World War; aged 56; died, June 18, of heart disease and chronic nephritis.

Roy McMillan Wheeler, Sycamore, Ill.; Northwestern University Medical School, Chicago, 1900; member of the Illinois State Medical Society; aged 64; died, May 19, of carbon monoxide poisoning.

Eugene Yetman Young, Champaign, Ill.; Rush Medical College, Chicago, 1903; member of the Illinois State Medical Society; on the staff of the Burnham City Hospital; aged 55; died, July 22, in the Mercy Hospital, of bilateral tuberculosis of the kidneys.

"The interest which vitamins hold for the physician is not alone in their relation to certain well-defined diseases, as scurvy, beri-beri and rickets, but rather in the fact that chronic vitamin deficiency produces numerous vague, borderline states of ill-health, which often puzzle the physician and disable the patient."

—J. S. McLester: "Nutrition and Diet in Health and Disease."

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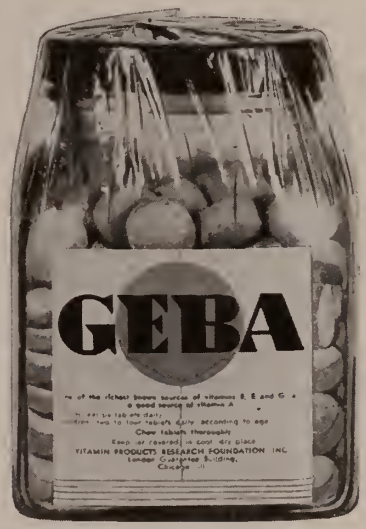
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G- Specific for pellagra; promotes growth; regulates constant production of blood; factor in prevention of anemia; helps to prevent skin irritations; helps regulate digestive action and proper weight.

E- Gives power to reproductive organs; prolongs vigor of maturity; helps to prevent sterility; factor in prevention of secondary anemia; assists Vitamin B in stimulating lactation.

B- Promotes growth; protects nerve and brain structures; prevents and relieves extreme nervousness and irritability; stimulates appetite and normal digestive action; relieves constipation; stimulates lactation; maintains vitality.

A- Builds resistance to colds and infections of eyes, nose, throat, sinuses, and respiratory and gastro-intestinal tracts; promotes growth and general well-being; assists Vitamin E in prevention of sterility, especially in the male.

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THE SUM TOTAL

"Dad, what part of speech is woman?"
"Woman ain't part of a speech, son. She's all of it."

NEITHER WILL WE

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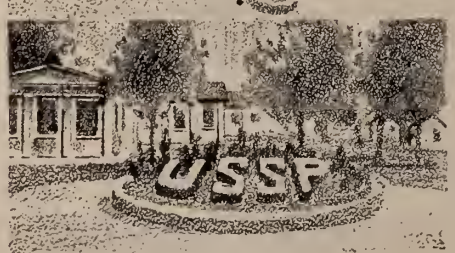
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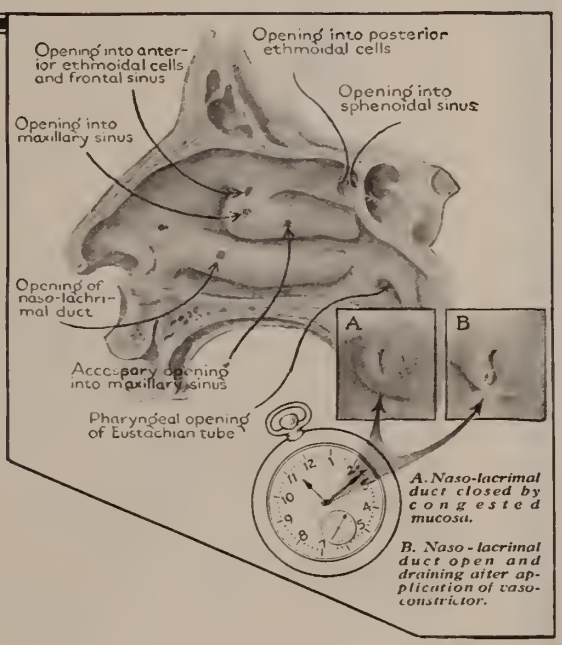
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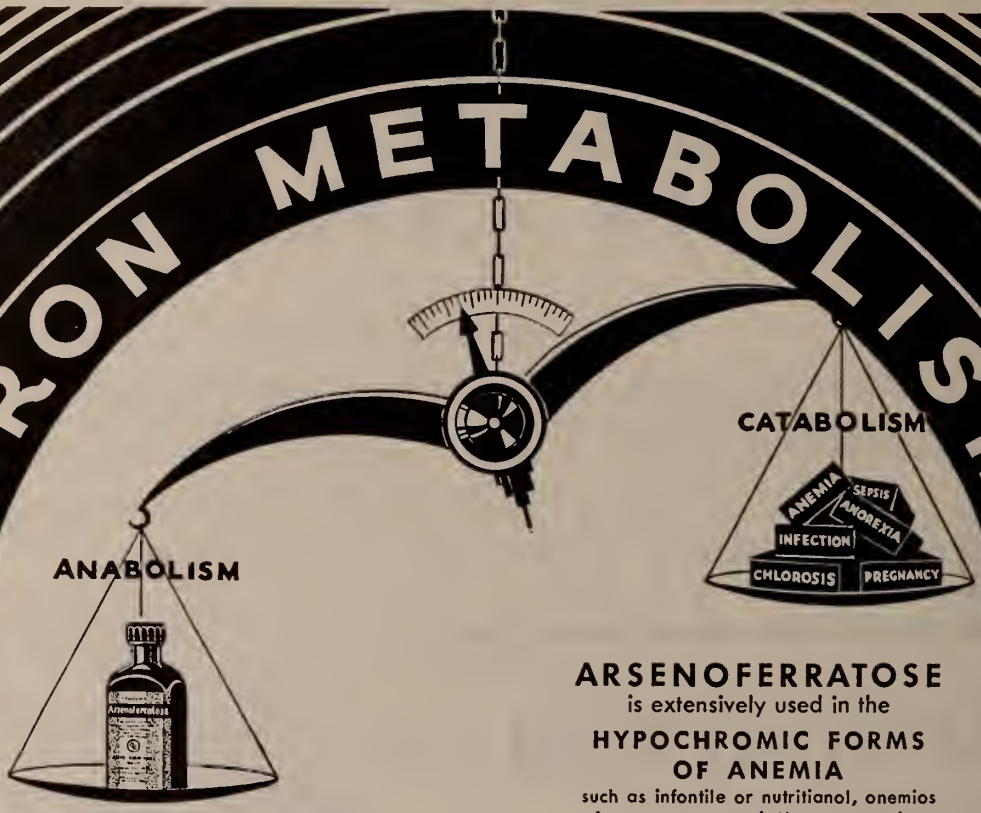
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1. Seborrheic dermatitis
   (a) Erythrodermia desquamative
2. Allergic eczema
   (a) Atopic eczema
      (1) Infantile
      (2) Chronic in older children
   (b) Contact dermatitis.
3. Mycotic eczema*

*This, of course, should not be called "eczema" but it is so often clinically undistinguishable from chronic eczema that it is probably best to include it in the group.

Dr. Irving McQuarrie reviewed the experiments of Dr. Burr (wherein rats deprived of unsaturated fatty acids developed eczema-like conditions) and emphasized the indispensable requirements in animal nutrition for unsaturated fatty acids, in particular linoleic and linolenic.

Dr. McQuarrie indicated the transfer of the experimental work on rats to the treatment of eczematous babies by Dr. Hansen with highly encouraging results.

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Dr. McQuarrie further pointed out that corn oil, like all animal oils, is less effective than linseed oil; that cod liver oil is not as effective as linseed oil derivatives.

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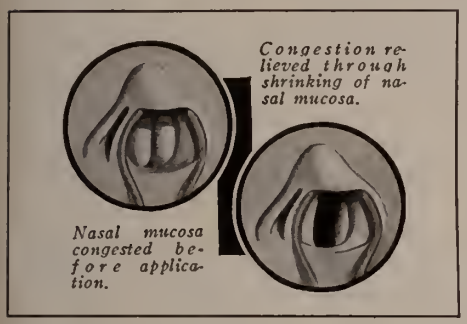
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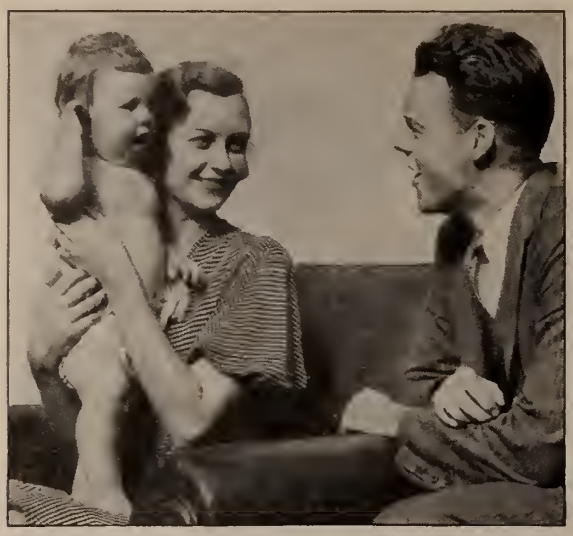
Book Reviews

THE ANATOMY OF THE NERVOUS SYSTEM. By Stephen Walter Ranson, M. D., Ph. D., Professor of Neurology and Director of the Neurological Institute, Northwestern University Medical School, Chicago. Fifth Edition, Revised. 501 pages with 381 illustrations, some of them in colors. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, $6.50 net.

In this work considerable revision has taken place. The text has been lengthened by including a revision of important neurologic concepts. The book has been increased by a large number of illustrations which have been grouped together as an atlas at the end of the text.

A TEXTBOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the Uni-

(Continued on page 32)



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Book Reviews

(Continued from page 31)

versity of Chicago and in Rush Medical College, Chicago. Eleventh Edition, Entirely Reset. 825 pages with 202 illustrations. Philadelphia and London: W. B. Saunders Company. 1935. Cloth, $6.00 net.

This work is the outgrowth of lectures given to students in the University of Chicago over a period of years. The fundamental principles and methods of laboratory work are treated quite fully and brings the work strictly up-to-date.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures on all phases of medical, surgical and medicine surgery and all the specialties by leading members of the medical profession throughout the world. Vol. III. Forty-fifth series. 1935. Philadelphia, Montreal, London. J. B. Lippincott Company.

LIVING ALONG WITH HEART DISEASE. By Louis Levin, M. D. With a foreword by Thomas M. McMillan, M. D. The MacMillan Company. New York. 1935. Price $1.50.

In this work the author presents to the reader a simplified explanation of the various aspects of heart disease in the hope of establishing a mutual understanding between physician and patient. The author states it has been written with the idea of giving the victim of heart disease a better conception, and a more intelligent attitude towards his or her malady; and to show that many forms of heart disease are compatible with a relatively normal and long life.

DISEASES OF THE CHEST. By Arthur Myers, M. D. National Medical Book Company, Inc. New York. 1935. Price $4.00.

OBSTETRICS FOR THE GENERAL PRACTITIONER. By J. P. Greenhill, M. D. National Medical Book Company, Inc. New York. 1935. Price $4.00.

THE MANAGEMENT OF COLITIS. By J. Arnold Bargen, M. D. National Medical Book Company, Inc. New York. 1935. Price $4.00.

INDUSTRIAL MEDICINE. By W. Irving Clark, M. D. and Philip Drinker, S. B. National Medical Book Company, Inc. New York. 1935. Price $4.00.

THE DOCTOR AND THE PUBLIC. By James Peter Warbasse, M. D. Illustrated. New York. Paul B. Hoeber, Inc. 1935. Price $5.00.

This work represents the study of the Sociology, Economics, Ethics and Philosophy of Medicine, based on Medical History. The work presents medicine as a social force and discusses social trends as influences upon the evolution of medicine.

DIET CONTROL. By George E. Anderson, M.D. and Paul Chadbourne Eschweiler, M.D., New York. Gallo & Ackerman, Inc. 1935.

This work represents a system of eleven hundred diets for the prescription of diabetic, anti-obesity and measured diets in general.

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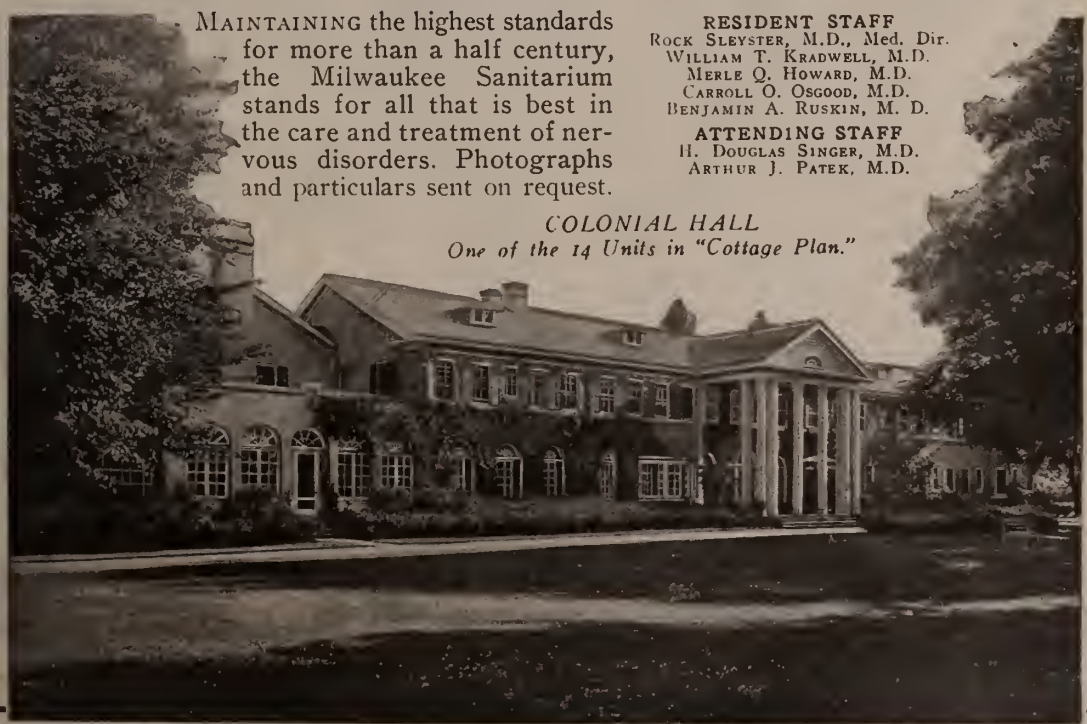
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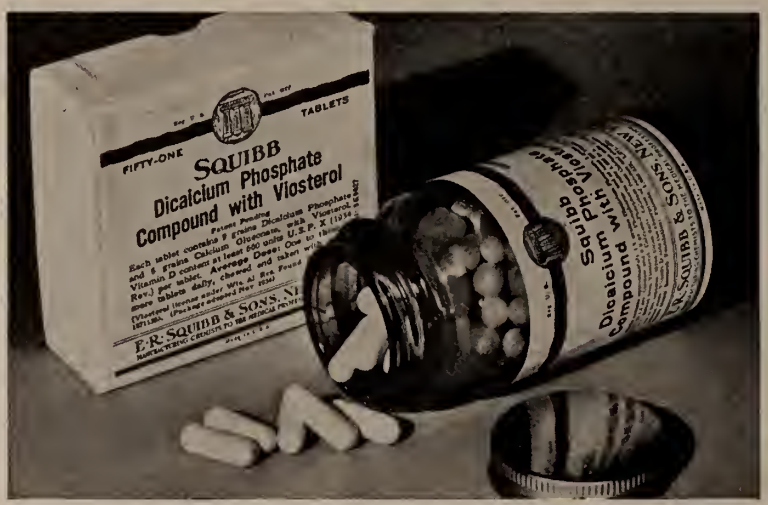
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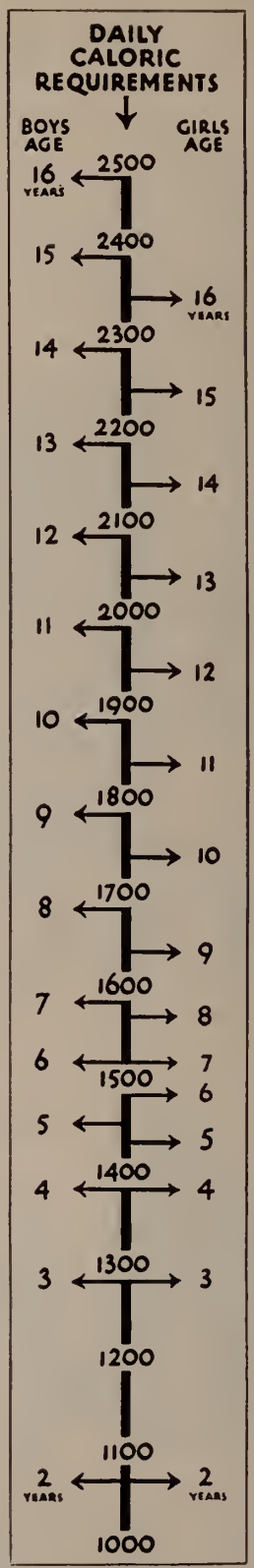
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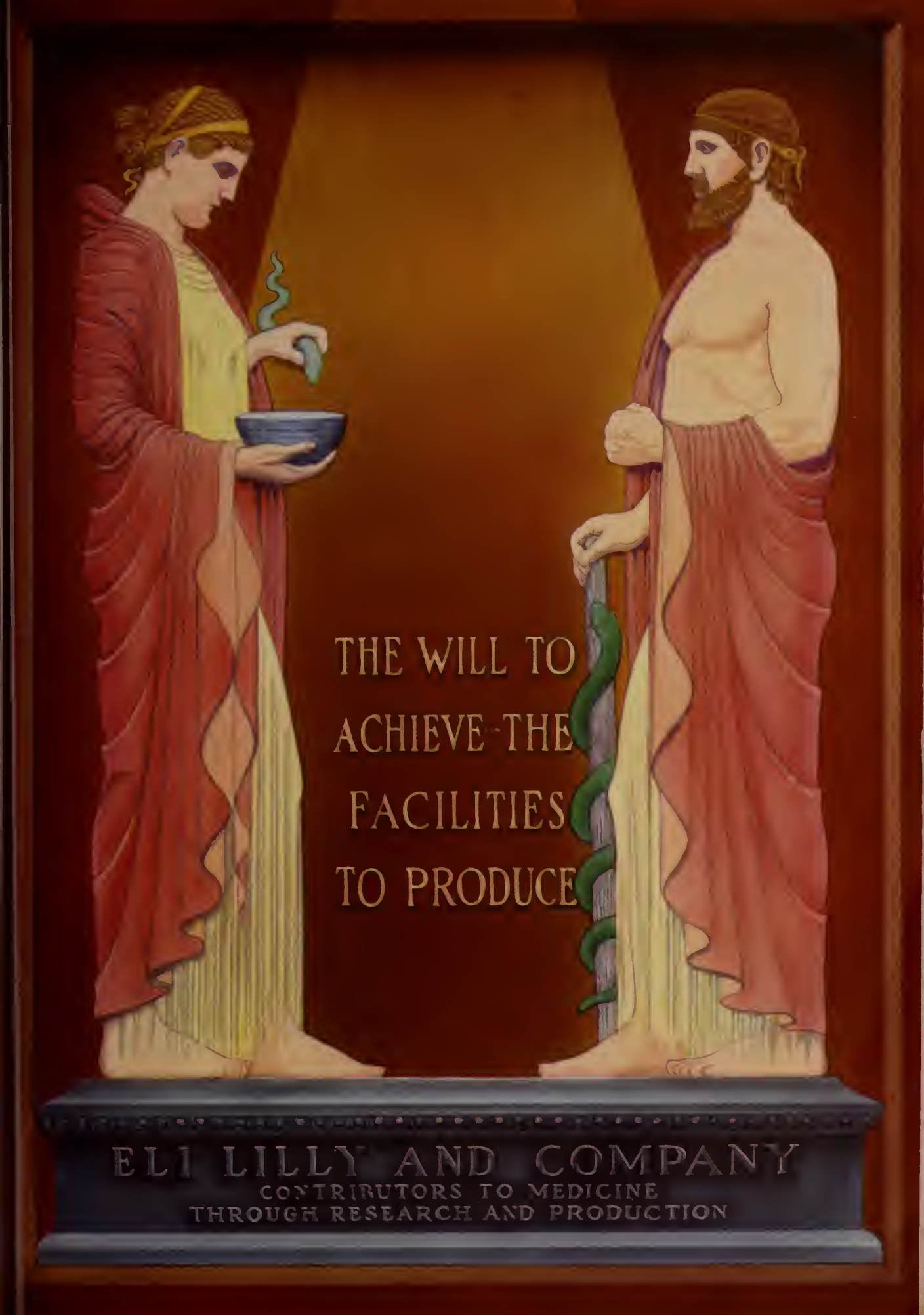
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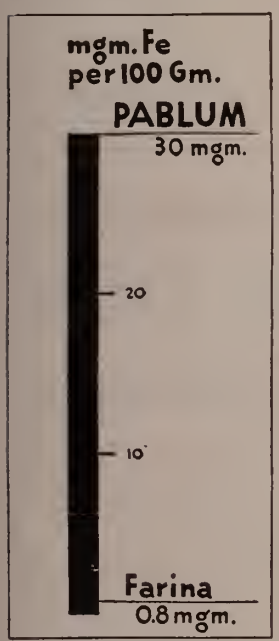
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1. Jour. of Biological Chemistry, Vol. 104. No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
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7. J. Nutrition, Vol. 1, p. 311, 1929.
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9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

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(1) Journal Nutrition 8, 449 (1934)
Journal American Dietetic Association 9, 295 (1933)
Journal Pediatrics 6, 749 (1932)

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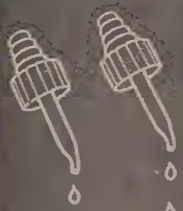
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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 69 OAK PARK, ILL., NOVEMBER, 1935 No. 5

ILLINOIS MEDICAL JOURNAL

Published monthly hy the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Contrihutors will submit all copy for puhlication typewritten on standard size paper and double spaced. Copy not complying with this rule will he returned, if convenient.

Suhscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

Editorial

LAY PHILANTHROPISTS SHOULD NOT BEGRUDGE TO THE MEN WHO MAKE HEALTH POSSIBLE, THE RIGHT TO EARN THE MEANS OF SUBSISTENCE

When the doctors of the United States pause to take a square eye-to-eye look at themselves and their profession, the majority are startled into both scientific and economic consternation.

Medicine is smitten with socialism. Whether medicine can survive unless there is a cessation of communism at its roots is a moot question. When it comes to communism, size up the clinics, free and pay.

Among manifestations of this increasing destruction are for example the so-called "pay" clinics, alleged to be designed for the medical care of those persons, too poor to pay regulation fees, and yet both by education and by income disinclined for charity. These pay clinics so-called, manage to meet overhead largely through the mistaken generosity of foundations and endowments, and sometimes by large individual bequests. Whatever the source of the financing, inevitably it is of lay origin and naturally of lay control, and this would be amusing were the situation less serious, and being maneuvered absolutely for the profit of the laity! Everybody gets paid but the doctor. Physicians donate their services. Janitors, doormen, clerks, labor both skilled and unskilled gets paid, even the allied scientific services of the nurses.

In other words, the physician is cut off from even the moderate payments he might receive from the fees paid by those who attend the "pay" clinic. It is of record that the majority of physicians, in addition to charity services invariably grade a bill to a patient who is unable to pay "top" fees. This is a tacit routine of the profession.

Between the years 1924 and 1934 the scope and the numbers of the completely free clinic,—and here too, the doctor is the man whose name is missing from the payroll—increased at a

menacing rate. There are four times as many free clinics now as there were in 1924. It is estimated too that doctors are now attending daily without fee something like a half million patients, or almost half—40% to be exact—of the entire daily sick list of a million and a quarter patients, that statisticians say must be paid for.

It would be interesting to note how long a boot and shoe business could survive if 40% of its sales were the pure waste of a dead give-away, or charity disbursement. A doctor invests more years of his life in his study and takes far more physical risk to prepare to practice medicine, than does the boot and shoe man, to sell or to manufacture shoes. Yet it is from "big boot and shoe men" and their confraternity that come the profits that finance lay foundations now so well on the way to control medicine.

Free hospitalization of veterans is stretched to such a point that here is another cul de sac preventing physicians from a rightful place in the economic sun.

Compensation clinic work and mass production contract insurance work are two more of fenders against the rights and the future of the medical profession and the maintenance of science.

Spread of charlatanism, annually receiving further and further recognition by state assemblies and legislatures, results in the profitable wage earnings of some 11,000 practitioners of Mary Baker Eddyism; over 3,00 naturopaths each year, and what is a crime against public health, puts some $42,000,000 annually into the purses of the osteopaths, and into those of the chiropractics something like $63,000,000.

In fact chiropractors and osteopaths have become a problem almost as dire as that of the "Witch doctors" in Ethiopia, fighting the victims of the conflict between the troops of Haile Selassie and Il Duce! These quacks are now powerful enough to have secured separate boards of licensure in some states and are on the way to make this condition national. Further while posing as "drugless healers" it would be enlightening to secure accurate information as to the frequency with which these quacks actually DO do surgery and prescribe drugs and give prescriptions in their own offices.

Still another offense is the building and subsidizing of new clinics and laboratories by health departments, or universities frequently tax supported in competition with private practice. Here is an instance where politically controlled state or municipal boards of health or even of education exceed their jurisdiction and betray the profession. Supported by the tax-payers, and doctors are not exempt from paying taxes even though politicians whose pay comes from taxpayers, are so favored, here is another fine instance of the tail attempting to wag the dog. After all the state board of health or any local board of health is only a functionary for the superior and master science of medicine; but a segment of the entire whole, and useful only as it performs its own vital tasks.

In many large cities it has become the practice to pay salaries to physicians employed by welfare departments. For a long time the nurses in those departments were paid and the physicians went begging. Under criticism and revolt this situation was remedied, such payments for the medical care of the indigent but whitewash the real situation. Among the more obvious criticisms to be made against it are that doctors are but human after all and there can not help but be favoritism towards private practice rather than the welfare and moderately salaried tasks. As a matter of fact any doctor prefers a fee basis rather than a salary and is more responsive. The fee basis is provocative of more pride in the work and more discrimination. Another tendency towards inferior service from such salaried men lies in the indisputable fact that the welfare physician on a salary is more than likely to be a man chosen for his political rather than his medical efficiency. Again the city pays for double service more often than not since when the patient needs extra attention or hospitalization he must be sent to some municipal or state charity hospital. The whole system is poor economics, either from the standpoint of politics or of medicine, or of plain everyday human nature.

The United States is estimated to have some 145,000 physicians and surgeons who donate annually to charity in services some $63,000,000, a larger contribution to society than that made by any other group and almost to a penny the same amount of money as that earned annually by those prize charlatans, the chiropractics!

What a mockery! Further when the "free patients" begin their gleanings if noses were counted, every person who has anything to do with a "free patient" gets paid for what is done except the physician, whose services the "free patient" set out ostensibly to seek, and who is being criticized all along the line by the providers of the payments to all the others as the cause of the high cost of caring for the sick.

As a matter of fact, endowments, foundations, free and part pay clinics have taken away from the doctor nearly 71% of what might be called commodity medical business. For this statement no less a medical man than the president of the Philadelphia County Medical society stands responsible, as well as for the statement that of the $150 spent annually by the average American family only $22 *goes to the doctor, the dispenser of medical care!* The remaining 85⅓% is dropped all the way along the line from the nurse to the pharmacist to the hospital. A doctor spends a dozen or more years in his preparation to practice medicine and a nurse anywhere from two to four years—usually three. The bulk of the money spent in a hospital does not go for medical or surgical attention or in fact professional service of any kind but for the patient's "board and keep", in other words shelter, heat, and food. Yet it is not that section of illness cost that is under bombardment, it is the doctor, without whose scientific knowledge the sick could not be cured, nor pain palliated, upon whom the entire system swings as upon a pivot and whose bill, if paid at all, is the last to be considered. Physicians have never been known to refuse care to a sick man simply because he couldn't pay, if no other medical care were available. The profession's charity is synonymous with its work. but the patient who can pay and won't pay, and the foundation that is going to distribute medical charity for the medical profession are both cut out of the same piece.

As a matter of fact, the foundations themselves and the groups and the endowments have got the cart before the horse. They should have endowed the medical and not the general public if they were really in earnest as to standardized medical and nursing care for the indigent ill.

Civilization hangs upon scientific medicine, which by its prophylactic practice saves the world from ills innumerable. Commerce hangs upon civilization, in turn, yet commerce and civilization are both showing appreciation by giving medicine a slap in the face. It would be most seemly if the medical profession were to distribute reprints of the old fable about killing the goose that laid the golden egg. It is surprising sometimes to find out what people do not know!

Medical economics will take care of itself when lay economists mind their own business and lay philanthropists keep their fingers off the medical profession. Let them make their hospitals, if they will, free for all! But begrudge not to the men who make health and wealth possible, the right to earn the means of subsistence.

GAS FILLING STATIONS AS FIRST AID HEADQUARTERS

The proposition to make every gas-filling station a first-aid station is something else again.

Pretty soon every hokey-pokey vendor will give out a pill to cure the baby's stomach-ache with every five cent ice-cream cone he sells.

And yet, in all fairness, it is no more right to begrudge the man who hands out "free air" and fills the gas tank and puts in "a little oil" his share of the exploitation of the doctor, than it is to let rich business men, retired merchants and inspired charlatans take command of the practice of medicine.

It is easy to see the line of argument. The body is a machine and the gas station attendants are sure to number at least one semi-mechanic. And so, if so, why not?

NO SCIENTIFIC PROFESSION HAS EVER BEEN SO ENCROACHED UPON BY AN IGNORANT OR MISGUIDED LAITY AS HAS THAT OF MEDICINE

What the editor of this Journal has been preaching for almost thirty years echoes on all sides.

"Get medicine to organize and fight organized politics and organized communism with organized medicine."

There is the slogan. For organized medicine in national, state, county and municipal or community societies there are divers tasks and functions, which are both scientific and economic.

The scientific programs of a medical society

rightly concern the patient. *But* the economic side of tasks allotted any medical society should concern the profession itself and should include an interest in all problems of any nature whatsoever which affects the membership of physicians. These problems may be legal, political, personal, medical or economic.

Naturally enough the handling of legislative problems, and these in the last ten years have been thicker than June blackberries, rests with the state society. *But* the state society should arrange for some sort of annual assembly and a forum where current and probable legislative problems can be discussed and plans laid for a campaign relative to such measures. In turn the national organization should lend every effort to take out of the hands of the laity and to return where it belongs, into medical hands all lawmaking, and all *law suggestion* dealing with public health and welfare, and the entire supervision and practice of medicine. To medicine, politics is poison, and medicine seems to be struggling to assimilate a large dose of politics.

Public relations men and women of propaganda bodies go about sowing the seeds of antagonism to organized medicine. Here is where fire should be fought with fire. Phrases instead of physics are sent out to cure the economic indigestion still remaining, though the war is almost twenty years past. Everybody who can read and write and talk, whether they can think or not, is out to tell medicine what is wrong with it. The main cry seems to be that the doctors wax fat and prosperous while the country starves. If the function of the medical society calls for nothing else it calls at least for an education of the general public to a knowledge of the facts in the case—which are that no scientific profession has ever been so encroached upon by an ignorant and misguided laity as has that of materia medica, nor any other been as philanthropic and self sacrificing.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS

A daily service of genuine helpfulness to every physician and a sine qua non for a bird's eye view of a medical man's daily financial condition is presented in the "Daily Log" for physicians issued by Dr. John B. Colwell of Champaign, Ill., and published by the Colwell Publishing Company, Champaign, Illinois. Price $6.00.

This is the ninth edition of the "Daily Log." For a number of years this volume has been a first aid to every busy doctor and his pocket book. Since first put out it has been subjected to yearly revisions and annotations though the general principle remains the same. "The Log" is just what its name says it is. Here is a daily financial record that is a brief, accurate, easily kept practical accounting system with daily, monthly and yearly totals, and monthly summaries and balances of income and expenses. It is *not* a ledger. To make a complete accounting system, a ledger must be run with it as the ledger is necessary for gathering together separate items of an individual account. However, this "Daily Log" is about the best thing that a busy man can have. It is easily kept by any intelligent office assistant and shows the physician the progress of his business day by day, and at the close of the year sets forth the basic figures needed for the income tax return.

Though not a clinical record there is a "Service Rendered" column for brief annotations of clinical facts.

The only major change in this edition is a new cover design which gives the log a better appearance on the physician's desk.

1. Up-to-date revision of the Obstetrical Record, so that it will furnish the data needed for the birth certificate. All the Obstetrical record blanks are gathered in the back of the book instead of placing one sheet at the end of each month as heretofore.

2. An entirely new form of brief notations of Surgical Operations is found among the special pages at the end of each month.

3. The dating of the Daily Page is revised so that the day of the month always appears at the upper outer corner of the page.

Containing over four hundred pages, the ledger provides a separate page for the transactions of each day of the year with extra spaces for monthly and annual summaries, expense tables, special records, and incidental memoranda. The volume is not to be confused with the small or pocket-size dairies often furnished for physicians' records, since each page offers sufficient room for the recording of thirty-two patients per day, tabulating the service rendered and the financial account accompanying the transaction.

Where fewer patients are seen, the additional space may be readily utilized in recording prescriptions given or essentials of the physical examination. The system is built on a loose leaf plan and durably bound in fabricoid. This is the best and most compact financial record which has come to our attention.

CARE OF INJURED EMPLOYEES ON WORKS PROJECTS

Soon after November 1, 1935, The Works Progress Administration (W.P.A.) will begin various projects in every county in Illinois to give employment to thousands of men over a period of one year. With so many men doing various types of work it is quite obvious that there will be many injuries received in the line of duty.

All injured employees will receive adequate care from physicians as a responsibility of the United States Employees' Compensation Commission.

Rules and Regulations Number One issued by the Commission on July 15, 1935, governing compensation and medical treatment for Works Progress Administration employees, requires that all vouchers, Form S-69, for medical services and all services in connection therewith be endorsed by the local Compensation Representative. All physicians, hospitals, and all others submitting charges should be instructed to submit vouchers, Form S-69, to the local Compensation Representative who in turn shall see that the services were authorized, charges are itemized on Form S-69, and signatures are proper, before endorsing the voucher and transmitting it to the Commission. Written authorization, if not previously submitted, should accompany the voucher for services. (Special Bulletin W. P. No. 1.)

The State of Illinois is divided into seven districts, one of which comprises only the city of Chicago, another Cook County outside of Chicago and three adjoining counties, while the remainder of the state is divided into five other districts. In addition to the State Director, State Compensation Officer, and their own personnel, there is a District Director and Compensation officer in each of the seven districts, and there will be appointed a local compensation representative in each community where projects will be under way.

The Illinois State Medical Society is pleased to announce to the physicians of Illinois that arrangements have been made with the Works Progress Administration whereby the physicians of Illinois who desire to participate in the giving of emergency care to injured employees provided they will follow out the instructions given above. A list of the physicians in each county in Illinois has been submitted to the State W.P.A. Director in duplicate so that copies will be available both in his office and that of each District Director.

Fees to be allowed to physicians for their services will be based on the usual minimum charge for such services in the local community, and should be billed accordingly. Each county medical society has filed with the office of the Secretary of the State Medical Society, their fee bill, or where one is not available, the usual charges for the various emergency services. In those instances where fee schedules have not been filed, the Veterans Administration medical fee schedule will be used.

PRACTICAL CONSIDERATION OF VITAMINS. THEY ARE STORED IN THE SYSTEM IN VERY SMALL AMOUNTS

Dwight L. Wilbur, Medical Clinics of North America (Rochester Number) September, 1935, pages 463-476, says:

There is much confusion as to the requirements for each vitamin and their relation to resistance against infection. All known vitamins are probably similar in that man is dependent on outside sources for supply and the behavior of vitamins suggest catalytic activity and that they are required in very small quantities, thus differing from proteins, fats, and carbohydrates (lack of official units of measurements). Vitamin contents of food varies in different seasons and in different years.

Vitamins (except eggs) are stored up only in very small amounts, while the other foods are stored up and may take the place of other foods (fats, proteins, etc.). Clinically insufficient vitamin supply to patients is recognized in the deficiency diseases only or by administering specific vitamins.

Clinical and experimental evidence show the requirements for vitamins A, B, G, C and D at some time of life. There is an increased demand for vitamins in pregnancy, growth, infections, gastro-intestinal diseases or operations may prevent assimilation of vitamins from the food: thus pernicious anemia.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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MEDICAL ECONOMICS COLUMN FOR NOVEMBER

No new problem of economic importance to the medical profession has made its appearance in the past month. Several of the old ones are still unsolved and worthy of the continued study of organized medicine. As yet there has been no definite date set for the ending of Federal Emergency Relief, although in almost every paper there is the opinion of some of the speakers of the administration referring to the same. This shows that in reality the administration is more than anxious to return the care of the indigent to the local governmental units. They had hoped to accomplish much by the setting up of Works Progress Administration, but at the time of the writing of this article little progress has been made in this regard. It is impossible to definitely find the cause of the delay, and one guess is as good as another. To a somewhat casual outside observer, it would seem that the entire problem is much larger and more unweildy than was originally thought by its planners, and too much internal dissension has arisen between those who desire to handle the work, not to mention the expected entrance of politics and political preferment with all of its well known failings. Connected with the transfer of those now receiving aid from the FERA to the WPA, a new problem will confront the medical profession. As long as a family is on the relief roles of FERA, they are entitled to medical care, along with the other necessities of life, but immediately upon transfer to the WPA, they must again assume full responsibility for all their living expenses. This must include medical care. From the figures given out at this time, it will be absolutely impossible for a man with a family to live on the wages he will receive and pay for rent, food and clothing, not to mention such things as medical care. And let us not forget that the indigent has been given to understand that medical care is one of the things to which he is entitled. How then will the medical man be paid for this service rendered to the family of the men transferred to WPA? Frankly it seems that no provision has been made for this necessity of life and the medical profession will be expected to assume this added burden. Now, as excellent in theory as individual responsibility is in developing character and as enthusiastic as the medical profession is for the continuation of individual business in America, it seems that once more the medical profession is left "holding the bag," to use an old but very appropriate saying. Local governmental units, such as County Board of Supervisors here in Illinois, have neither the funds nor the experience to assume this added responsibility even if they had the desire to branch out into new fields. Surely this calls for some action by the Doctors of the United States.

Another question that has arisen in connection with the WPA is the care of those injured on WPA works. At first it was intended to have a few physicians in each county care for these men, and the physicians on the list of the U. S. Employees Commission were selected. This seemed a little unfair and at a meeting held early this month in Chicago, the special Committee under the chairmanship of Dr. Neal met a representative of the compensation division of the WPA and a pleasant discussion of the subject was held. It was agreed upon by all that the fair and equitable way of handling the injured was for all medical men of the community in which the project was being carried to be eligible for this work. Accordingly all men whose names now appear on the lists of the FERA have been transferred to those of the WPA. The fees agreed upon are the regular minimum charged in that community for similar services. Special forms must be filled out

in all these cases and it was further agreed that some one non-medical employee on each project would be charged with the responsibility of getting the proper forms to the physician in each case. The physician must fill them in completely and promptly. When the case is completed and the bills rendered, they will be paid direct from Washington. This agreement seems most fair, and it is up to medical profession to do its part to make it successful, for this is a departure from the regular method and any failure on the part of the medical profession is bound to result to their disadvantage.

Apparently the Board of Supervisors in the various counties throughout the state are slowly assuming their new responsibility of caring for the indigent of the county. They are trying all kinds of plans, but in most cases are proceeding slowly to avoid mistakes and are anxious for the cooperation and counsel of the medical profession. A strong committee from the County Medical Society can wield great influence for the good of the County, the indigent and themselves, by offering their assistance to the Board at any time they are wanted. The best plan so far advanced is for all the physicians to be eligible for this work at a price agreed upon by both the County Medical Society and the Board of Supervisors. This will vary in the different counties, but once agreed upon should be rigidly adhered to. Your committee believes that the County Board will quickly see the disadvantages of having a County physician, once the medical profession takes the time to explain the same to them.

It is encouraging to hear that some of the Counties have held symposiums on current economic problems and it is to be hoped that many more will do the same in the near future. Some of the speakers, such as Dr. Camp and Dr. Packard are in great demand due to their outstanding ability as speakers as well as their knowledge on the subject. We hope with the cooperation of the Educational Committee and the Councilors to soon have speakers available to address lay groups in any part of the state. This is however a slow job, due to the difficulty of finding interested men, who are willing to give the necessary time to prepare their papers. Improperly or inadequately prepared papers are worse than useless.

Following this article is one by Dr. R. K. Packard of Chicago, past Chairman of the Council, on the subject "Ethics and Economics." It presents excellently some of the changes which have occurred in ethics in the past few years and draws conclusions, which should both stimulate our thoughts and please us.

E. S. Hamilton,
Chairman of Committee on Medical Economics.

ETHICS AND ECONOMICS

Ethics and economics in medicine may have something in common, at least they are not inseparable. Ethics is a moral code applicable to all phases of our social organism and various codes of ethics have been established for the component parts of our society. Ethics is not new and philosophers for hundreds of years have written regarding standards of ethics. We are interested in our code of ethics which might be called a scientific effort to prescribe a moral and economic code for our guidance. Fortunately or not every physician establishes for himself some code of ethics, even though he be not familiar with our written code and if he be familiar in detail with the medical code he may make his own interpretations of it.

It is obvious that ethics cannot be standardized because men have not yet agreed upon a moral code. The fundaments of morals differ with one's philosophy and one's philosophy may or may not be influenced or controlled by his position in life and by his environment.

It has been said that if the medical profession had in the past or would in the future conform strictly to the code of ethics, that most if not all of our economic troubles would not have occurred or could be cured. We count among our evils contract practice, corporate practice, unethical advertising, unethical publicity, etc., and find at once that at least to most of us, they seem to be out of line with our code of ethics, and that therefore those physicians who have trespassed away from the fold and engaged in such practices have produced our ills. At least the great cry from both the profession and public as a whole is that on the one hand the physician is not earning sufficient and on the other hand the public are either paying too much for medical care or not receiving adequate medical care.

One must not reach a hasty conclusion regarding our ethics and the 100% observance of them, because it remains a possible point of argument, that we might have developed other equally or more troublesome complications by such strict adherence. Economic security brings independence to the front and it is not inconceivable that an economically secure prefession might not have taken an attitude towards certain income groups needing medical service that would have been denied and therefore have brought forth a social plea for re-organization of our medical service. That the largest number of physicians would not have taken such action or stand, I think is admissible, but it is the minority often that starts the trouble which eventually may become the majority.

The other side of the problem is that many of these practices really started as a necessity, such as contract practice in railroad, lumber and mining camps, and they developed into evils by extension, so that what might be a moral code of ethics today might degenerate or develop in one that we would not consider a moral code in a few years hence.

One must discuss whether ethics changed our economics or whether economics changed our ethics. Recent changes in the economic status of many physicians undoubtedly led some of them to re-arrange their code of ethics, some of them to a wide open breach and some to the greatest distance without actually becoming compromised. When rent is due, when children need food, clothing, education, etc., and the income sufficeth not, it is not difficult to understand that man asks himself to decide between the code of ethics of his business or his profession and his code of ethics for his family because it at most a moral code and his judgment may be swayed by that which seems the closest to him. Again we hear it intimated that the code is flexible according to one's exact position. We have ethical and unethical publicity or advertising and what may seem highly ethical in one instance seems extremely unethical in another. Then ethical publicity may add to the income of one at the expense of another and one cannot determine the exact role in economics that proposed such publicity. Thus the physician may be very ethical as far as standing in the profession is concerned and highly unethical in his own mind. Ethics is to him a convenience and not a moral.

One cannot reach a conclusion in a discussion of ethics and economics in the medical field, nor in any other field, because moral responsibility is individual and flexible.

If economics have changed the ethics of the profession—I do feel that a majority of those who did become discouraged and dropped their membership and therefore to all intents and purposes discarded the code of ethics—have again come to feel that the code of ethics has done so much for them and the public that they hasten to return to the fold, because they can plainly see that without a code of ethics we become disintegrated and that whatever economic security we have at present would soon be swept away by unethical and chiseling practices. The more, men will return to the code of ethics and be guided by it as both a good moral and economic code, the better will the future of medicine be for the profession and the public, with the profession assuming a moral responsibility for the rendering of medical care to the American People.

R. K. Packard,
Councilor, 3rd District.

Correspondence

IS MINERAL OIL "HARMLESS"?

A Rejoinder

Chicago, Ill., October 15, 1935.

To the Editor:

Mr. Grant, in October Illinois Medical Journal intentionally or otherwise, has placed an entirely different construction on my use of the word substituted. I am not in the least concerned with the legality of a problem having to do with nutritional research. I am concerned merely with its experimental aspect. Whenever mineral oil is used in place of an indispensable fat, such use constitutes a substitution; and such substitution is indefensible. Mr. Grant has not furnished evidence which would convince anyone that such substitution of mineral oil for butter, or leaf lard or certain of the edible oils is other than nutritional retrogression. The facts are too evident.

Mr. Grant's presentation of the "clarification" of the whole question of mineral oil's vitamin de-

pleting property is rather incomplete. Also, when he states that only vitamin A may be diverted, he apparently overlooks the recent work having to do with the diversion of vitamin E; nor is it at all finally established that vitamin D is not diverted.

It is true that the profession "quite generally understands" the complete lack of food value attached to the use of mineral oil. The real issue is whether the medical profession is equally aware that the lack of food value is not nearly so serious as the nutritional impairment that comes from the disturbance of digestion. Pointing out that mineral oil is of itself valueless as a food is insufficient; it should be stressed that it interferes with the nutritional value of comestibles.

Perhaps a review of some facts collected from medical and biochemical literature may serve better to explain the perfectly legitimate premise that inasmuch as mineral oil is certainly not indispensable to the human body (there are many harmless substances that can replace it most effectively), and inasmuch as it does have numerous indictments against its use which suggest lurking danger and injury following its use; it is probably in the interest of all concerned to restrict its use to intelligent medical prescribing and to legislate against its promiscuous projection upon a greatly propagandized public.

As early as 1918 Bjerrum and Chrom reported upon poisoning with mineral oils, indicating that the internal use of liquid paraffin in experimental cats practically always induced diarrhea, loss of appetite and somnolency, and that one liquid paraffin was lethal in a dose of from 27 to 107 grams, or from about 1 to 3 ounces. Chrom protested against the use of mineral oils in any form in the preparation of food.[1]

Lanczos reached a similar conclusion in 1926, and reported the lethal effect of paraffin oil, the experimental cat dying on the fourth day after showing some somnolency and ptosis. He observed that the closure of the pylorus induced by morphine is almost without exception weakened or abolished by paraffin.[2]

Dutcher, Ely and Honeywell reported in 1927 that rat feeding experiments indicate clearly the solvent action of mineral oil for vitamin A, thereby depleting the ingested foods of this vitamin.[3] At about this same time Burrows and Farr, reviewing the work of Leitch, who has shown that mineral oils applied repeatedly to the skin of animals induced cancer and alleging that these same oils are responsible for cancers in man, ascribed the cancer producing action of mineral oil to the removal of fat soluble vitamins. Their experiments indicated that mineral oils, differing from vegetable oils, not only removed the fat soluble vitamins from the food, but produced other toxic effects as well. This was revealed by the rapidity with which Nujol brought on death, in about six to nine days, so that the harmful effect of vitamin depletion could hardly have established itself.[4]

The "diversion" of vitamin A from alimentary absorption by the presence of the non-absorbable liquid petrolatum was the subject of editorial comment in the Journal of the American Medical Association for 1927.[5] Olsen concludes that liquid petrolatum given by mouth did not interfere with digestion and absorption of protein and carbohydrate food.[6] It is hardly to be expected that either protein or carbohydrate, owing to its insolubility in liquid petrolatum, could be seriously affected by this solvent. Yet, in his principles of therapeutics, Osborne suggests that "coating the stomach and intestines with continued doses of oil can but inhibit the digestive juices, and also must inhibit the absorption of nutriment."[7]

Working in the Research Department of E. R. Squibb and Sons, Moness and Christiansen reached conclusions which differed from those of Dutcher and his collaborators, and stated that the liquid petrolatum (Squibb) which they used seemed to behave differently from the mineral oil used by Dutcher and his co-workers. This work has never been confirmed by other observers.[8]

Chunnon and Collinson produced evidence to show that liquid paraffin is absorbed to some extent, as is evidenced by the lowering of the iodine value of the non-sterol fraction of the unsaponifiable matter of the livers of rats which received liquid paraffin in their diet, and which was confirmed by an experiment on pigs in which the hydrocarbon was isolated from the liver.[9]

Jackson found that with rats, mineral oil causes a considerable loss of vitamin A to the animal organism if it be mixed with the vitamin A, in the form of butter, prior to digestion. If the administration of mineral oil is made sepa-

rately from the butter fat, only a slight diversion of vitamin A was observed.[10]

Rowntree's experiments suggest that the effect of mineral oil on the absorption of vitamin A appears to be dependent upon the amount of vitamin A in the diet, rats being unable to withstand the effects of the mineral oil given in doses comparable to human therapeutic use when the vitamin A level was only enough to produce subnormal growth.[11]

Twort and Twort observed the fatty infiltration of the liver of mice resulting from the ingestion of medicinal liquid paraffin.[12]

Mitchell, commenting upon the relation that exists between carotin and vitamin A, reported striking results such as to leave no doubt that mineral oil does seriously interfere with the assimilation of the pro-vitamin in plant cells. She concluded that the effect of mineral oil on vitamin A assimilation is of sufficient magnitude to be significant.[13] In another study, Jackson confirms the work of Dutcher, Ely and Honeywell in respect to the vitamin A depleting property of mineral oil. He concluded that it seems possible to overcome the effect of the mineral oil by the inclusion of extra vitamin A in the diet. He indicated also that the administration of mineral oil separately from restricted doses of yellow corn interferes considerably with the assimilation of the vitamin A factor in the corn.[14]

Dutcher, Harris and Hartzler, seven years after their first contribution, studied the assimilation of carotin and vitamin A in the presence of mineral oil, and confirmed their previous results. These investigators explained the harmful effect of mineral oil on the basis of carotin excretion from the body in the unabsorbed solvent. Their hypothesis is supported by the fact that yellow pigment excretion (when mineral oil is fed) is roughly proportional to the carotin ingested, which is not true when carotin is fed in the absence of mineral oil. They suggest that the lipids and sterols of the intestinal juices do not possess as great a solvent effect on the hydrocarbon carotin as does mineral oil, and that this preferential solvency is effective in preventing intestinal absorption of pro-vitamin A.[15]

Rapid and exceedingly devastating effects resulting from the feeding of mineral oil at a level of about 10% in the diet of experimental laboratory animals is quickly demonstrated. In fact, the impairment of health appears so promptly as to suggest that toxic effects beyond those of vitamin depletion can be difinitely ascribed to the ingestion of mineral oil. No experiment is so certain in its outcome and so easy to reproduce as that which points conclusively to the definite harm produced by feeding liberal amounts of mineral oil. Much work remains to be done in evaluating all of the various factors which contribute to that harm.

Mook and Wander reached the conclusion that it was dangerous to use liquid petrolatum as a vehicle for any remedy to be injected in subcutaneous tissue.[16]

Davis described the chronic granuloma produced by prolonged, continuous exposure of susceptible tissues to the irritation of paraffin. Disfigurement, deformity and interference with function, if the lesion is in a region requiring motility, are the chief types of disability which result; cancerous degeneration is an occasional intruder.[17]

Cooper and Freed challenged the advisability of using the oil intratrachially, indicating that liquid petrolatum, if injected into rabbits even in small amounts, is readily aspirated into the finest pulmonary divisons, where, being retained for a relatively long time, months, they can produce a proliferative bronchial pneumonia.[18]

Oil tumors, according to Burrows and Jorstad, that have remained small and quiescent for years in a patient have become active almost at once when the patient was placed on a salt and vitamin-poor diet.[19]

Twort and Fulton described the nature of the carcinogenic agents in mineral oil.[20] Twort and Twort have discussed the reaction of the skin to oils and tars and more recently have determined that the carcinogenic property of mineral oil is related to its refractivity constant.[21] The work of the Manchester Committee on cancer leaves no room for doubt in respect to the varying carcinogenic action of mineral oil. Twort reports that some mineral oils are much more carcinogenic than others, and all of them except white oils and spirits have to be viewed as potentially carcinogenic. Twort now arranges the chief world supplies of oil according to their cancer generating powers. The least harmful oils are Russian, and those from Pennsylvania and Texas come next, whereas the Scottish shales are highest, more than forty-five times as

potent as the Russian But oils of varying potency can be obtained from every single area, so that too much stress must not be laid on the origin.[22]

By no means are all the referenees given that bear on the nutritional harmfulness, the vitamin depletion, and the careinogenie property of mineral oil. Only some of the work which has appeared in authentic British and American literature is referred to. And from this work any physician should safely conclude that mineral oil is far from being nutritionally inert or from being entirely free from the possibility even of producing cancer.

There seems to be little justification for defining the use of mineral oil and its related products in injections, a practice that appears to have been abandoned some time ago; or for the rubbing of mineral oil over the skin as is so commonly practiced in the case of most cosmetic preparations; or for treating the hair and sealp with mineral-oil and vaseline bearing hair tonics; or for the widespread inhalation of "nose drops" of mineral oil base; or for the promiscuous ingestion of mineral oil heralded so subtly by insidious free sampling propaganda through the innocent instrumentality of either a non-suspecting or an indifferent physician. However much mineral oil interests may argue their version of the harmlessness of that product there is no convincing evidence to the effect that a civilized public indispensably requires the extensive internal and external bathing as is everywhere urged by these interests.

From the published reports of good workers in nutrition and conscientious physicians it is easy to admit that mineral oil is far from indispensable. When human lives are at stake, it would seem good judgment either to replace this product with many others of known therapeutic efficacy from which the physician may choose. Unpublished reports are valuable only when corroborated. If there are instances where the inunction, the inhalation, the injection and the ingestion of mineral oil seem inevitably demanded for therapeutic purposes, the lurking potentiality of its nutritional harm, its vitamin depletion and its careinogenic property should be sufficient to impel that kind of medical supervision that will result in the intelligent medical prescribing of mineral oil.

MILDRED ONCKEN, M. S.

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THE LATEST IN FRACTURE DRESSING

Oak Park, Oct. 18, 1935.

To *The Editor*: The traditional method of strapping with adhesive plaster has the disadvantage that with many patients, especially fat ones, the plaster rolls over at the edges and in 24 to 48 hours is a rope around the chest instead of a flat band. It is uncomfortable and must be removed.

To prevent this it occurred to me that by using some thin, stiff, flexible material fastened to the outside of the band of plaster it could be kept smooth and flat. A dressing could be made to stay in place for a week or more or until the perspiration loosened it from the skin.

On investigating such stiff materials, I have found that sheet fibre (used as electrical insulation), .0015 inch thick, is ideal for the purpose. It will cut easily with the scissors, and will bend but not tear or crack. It is sold in sheets 50x80 inches.

The dressing is made as follows: A band of the sheet fibre 3 inches wide and 40 to 50 inches long is cut, a strip of adhesive plaster of the same size is torn from the roll. Lay this on a table sticky side up. Two strips of moleskin plaster about one inch wide are applied, sticky side down so that the moleskin covers about three-eighths of an inch of each edge of the broad band and projects over its edge. Now all three bands (stuck together) are turned over and laid on a piece of crinoline backing that comes with the 12 inch rolls. The strip of fibre is laid on the middle of them and the edges of the plaster are drawn over smoothly and stuck to the upper surface of the fibre.

This gives a stiff dressing with a sticky surface and edges not sticky covered by the soft moleskin.

While the patient exhales, wrap the dressing tightly around the chest over the fracture, and overlapping in front. With a narrow knife blade poke slits through the overlapping ends near the top and bottom edges, push a "Counting House" paper fastener through each slit and spread the ends of the fasteners inside. Stick a little piece of plaster over the inside ends of the fasteners to prevent scratching the skin. A second or third band may be applied overlapping if several ribs are broken.

This dressing will stay smooth without a wrinkle and not curl or cut at the edges and remain in place until it is taken off or loosened by excessive perspiration.

When the breasts are large, they are drawn up and supported by adhesive bands from the dressing to the shoulders.

It can be used beautifully as strapping for lumbago and in many other ailments where stiffness is required. It is giving great satisfaction in supporting the pelvis in separation of the symphysis.

Leslie W. Beebe.

Medical Arts Bldg.

EDWIN PLUMMER SLOAN, M.D.

(1876—1935)

John R. Neal, M. D.

SPRINGFIELD, ILLINOIS

The following excerpt from an editorial appearing the day following the death of Dr. Edwin Plummer Sloan justly summarizes the unique qualities of the man.

"In the death of Dr. Sloan, this community loses a fine citizen, a great humanitarian, a scientist whose fame in surgery, especially in the particular branch dealing with the treatment of goiter, is national and international. But in spite of the growth of his fame to world-wide proportions, Dr. Sloan was to his neighbors in Bloomington the same modest, kindly and unobtrusive man and friends which he had always been. He personally gave his time, effort and resources to improve local hospital facilities. He performed uncounted operations for which he did not receive pay, and thus performed services for the poor which equalled any the rich might buy. He was genial and hospitable. While the scientific world loses a great surgeon and humanitarian, we in Bloomington mourn the passing of a good friend and neighbor."

In spite of his too few years, Dr. Sloan lived a full, well-rounded life. Into less than sixty years he poured the tireless energy of a score of men. His record of accomplishment tells a remarkable story of a swiftly-moving well-directed usefulness. . . .

Edwin Plummer Sloan was born at Neosho, Missouri, February 13, 1876. He received his medical degree from the University Medical College of Kansas City, Mo., and in 1898 took up the practice of medicine in Illinois. In 1905 he located in Bloomington where he established the Sloan Clinic which for years has been a mecca to students and surgeons from all parts of the world. When the growing need for hospital facilities made it advisable, he took the lead in the establishment of the Mennonite Hospital in Bloomington where he served as chief surgeon until the time of his death. He has also been chief surgeon of the Staff of St. Joseph Hospital since 1908.

To a remarkable degree, Dr. Sloan possessed the scientific spirit. A painstaking passion for perfection characterizes all of his work. He spent the years of 1902 and 1903 in study in Berlin. On a subsequent study trip while visiting the Theodore Kocher Clinic in Berne, Switzerland he became impressed with the need for extensive research in goiter—then comparatively unexplored territory. From that time on he worked intensively in this field and through the rest of his surgical years was justly known as an authority in his chosen specialty. But in spite of this fact, Dr. Sloan never relinquished his skill and interest in abdominal surgery. His recent writings upon abdominal incisions and his skillful surgery testify to continued service in that field.

Under Dr. Sloan's leadership, in 1923, there was organized in Bloomington the American Association for the Study of Goiter. The following year saw its first three-day clinical meeting held in Bloomington with four hundred surgeons from the United States and European countries attending. He served this organization as president in 1924-25. Out of this Association was organized the International Conference on Goiter and in 1927 it held its first meeting in Berne, Switzerland with doctors from thirty-seven countries participating. He made two subsequent trips to Europe in the interest of this organization.

Although Dr. Sloan is most widely known for his scientific contributions to the field of surgery, his years of service in other fields are noteworthy. He will be remembered for his indefatigable efforts to further the scope and service of the medical profession. Since the beginning of his medical career he has been active in all organization work. In addition to his active membership in the leading surgical organizations both in America and in Europe, he assumed his full share of executive work in professional societies. He began as president of his County Medical Society. He was president of the Illinois State Medical Society in 1922-23 and for four years (1929-1933) he served Illinois as its delegate to the annual meetings of the American Medical Association. He has also been the McLean County delegate to the State Society for the last ten years. For eight years he served as president of the Advisory Board of the Illinois State Board of Health. In 1924 he was vice-president of the Tri-State Medical Society. Under Dr. E. H. Cary's regime he was appointed a member of the Judicial Council of the American Medical Association upon whose board he was at the time of his death. His absolute fairness and clear vision gave him an authoritative voice in medical council halls where his influence will be felt for many years to come.

As a teacher Dr. Sloan will be remembered by the many who came under his tutelage. For a number of years he has been a member of the faculty of the Chicago Medical School. Dr. Sloan was an instinctive teacher, marked by the generosity with which he shared the results of his research. All who visited his clinic were impressed by this fact.

In Dr. Sloan's death closes a magnificent life of honorable achievements. We mourn the passing of a greatness, a goodness we shall not know here again.

IN MEDICAL LITERATURE DR. SLOAN LEAVES THE FOLLOWING:

Effects of Goiter and Results of Removal on the Circulatory System. Read before the Southern Illinois Medical Assoc., Nov. 5, 1914.

Operative Treatment of Goiter. Read before the Tri-State Medical Society, Oct. 7, 1915.

Special Disorders of the Heart from Goiter. Reprinted from the Illinois Medical Journal, March, 1918.

Goiter Operation Technique. Reprinted from the Illinois Medical Journal, Feb., 1921.

Some Technical Points in the Operative Treatment of Goiter. Reprinted from Sept., 1924, issue of Illinois Medical Journal.

Medical X-Ray and Surgical Treatment of Goiter. Read before the Kansas State Medical Society, Topeka, Kan., May 5, 1925.

Prevention of Goiter. Read before the Illinois State Medical Society, May 19, 1925.

Tuberculosis and Goiter. Reprinted from the Journal of A. M. A., June 18, 1927.

Two Types of Toxemia in Toxic Adenoma. Read at the Post-Graduate Clinics of Michigan State Med. Society, 1928.

Froglore. Reprinted from the Welfare Magazine, October, 1928.

Etiology of Graves' Disease. Reprinted from The American Journal of Surgery, Aug., 1929.

The Role of the Thyroid in Differential Development. Reprinted from The American Journal of Obstetrics and Gynecology, Feb., 1930.

Abdominal Incisions. Reprinted from The American Journal of Obstetrics and Gynecology, Feb., 1932.

At the time of his death, he had ready a book on goiter which will be published in the near future.

NOTE: Dr. Neal, the author of this sketch, was chosen by a Committee to represent the Illinois State Medical Society in speaking at Dr. Sloan's funeral service.

IOWA AND ILLINOIS CENTRAL

The quarterly meeting of the Iowa and Illinois Central District Medical Association was held at the Le Claire Hotel, Moline, Illinois, October 18, 1935. Dr. H. B. Cushing, Professor of Children's Diseases at McGill University, Montreal, Canada, addressed the members on some of the "Newer Phases of Prophylactic Inoculation in Children—Pertussis, Measles, Diphtheria, Poliomyelitis, and Scarlet Fever.

The address was discussed by Dr. W. L. Crawford, Pediatrician of Rockford, Ill.

Dr. Cushing spoke before the Lynn County Medical Society at Cedar Rapids, Wednesday evening and before the Polk County Medical Society at Des Moines, Thursday evening.

Dr. Worling R. Young of Geneseo, Ill., presented a clinical case and Dr. Preston E. Gibson of Davenport gave a short talk on "In Children—Vomiting—The Symptom."

Over one hundred physicians of the Tri-Cities and surrounding territory attended the dinner and meeting.

James Dunn, M.D., Secretary.

EDUCATIONAL COMMITTEE
ILLINOIS STATE MEDICAL SOCIETY

September and October

RADIO PROGRAMS:

47—Health programs were given over stations WGN, WBBM, WAAF and WJJD. These talks were prepared and given by members of the Chicago Medical Society. The Committee has furnished copies of them to Bloomington and Decatur for local use.

Radio programs are at the present time given at the following hours and doctors are requested to tell their patients of these special health talks:

WGN—Tuesday afternoons at 2:30.

WJJD—Tuesday and Thursday mornings at 10:45.

WAAF—Tuesday and Friday afternoons at 3:00.

WBBM—Is used occasionally at 9:45 o'clock on Tuesday mornings.

Many of the smaller clubs and study groups are making use of the radio talks furnished by the Educational Committee.

SPEAKERS BUREAU:

42—Health programs were arranged for lay meetings in Chicago, Lake Forest, Libertyville, Effingham, Marshall, Chicago, Clinton, Wilmette, Oak Park, Louisville, Mt. Pulaski, West Chicago, Naperville, Glencoe, Belmont, Casey and Greenup.

A number of the programs were devoted to the discussion of Socialized Medicine.

Programs were scheduled for County Teachers' Institutes, Women's Clubs, Parent Teacher Associations, Schools, Churches, Mothers' Study Clubs, Kiwanis, Rotary and Lions Clubs, Advertising Club.

SCIENTIFIC SERVICE APPOINTMENTS:

28—Scientific programs were arranged for Aurora, DeWitt County, Elmhurst Hospital, Will-Grund County, Westlake Hospital of Melrose Park, LaSalle, Bureau, St. Clair, Sangamon, Rock Island and McHenry Counties and the Ninth and Tenth Councilor District.

An Obstetrical Clinic and program were arranged for LaSalle County Medical Society and a Pediatrics Clinic and program for the 9th and 10th Councilor Districts. A Heart Clinic is being scheduled for a southern Illinois County.

Similar clinical programs can be arranged for any county or district meeting in the State. These programs usually begin at 4:00 and carry through the evening. Physicians are requested to bring clinical material and the meetings are primarily postgraduate courses.

The new list of scientific speakers is off the press and has been mailed to secretaries.

PACKAGE LIBRARIES:

The American Medical Association has furnished the Educational Committee with a supply of material on socialization of medicine and medical economics. Forty package libraries on the subject of "Socialized Medicine" have been sent out in Illinois to debating teams and prospective speakers.

Special package libraries have been compiled for doctors scheduled to address lay meetings.

A number of libraries have also been loaned for Illinois doctors from the A. M. A. library.

SPECIAL CONTACTS WITH LAY ORGANIZATIONS:

The Committee has communicated with the public health chairmen of the Illinois Federation of Women's Clubs (has furnished health programs for four of their district meetings) and also the Child Hygiene Chairmen of the Illinois Congress of Parents and Teachers.

Publicity was given the Cancer programs sponsored by the Chicago Woman's Club.

Special radio broadcast has been arranged for the Adult Educational Council of Chicago.

Cooperated with National Hearing Week by giving all radio broadcasts during that week to the subject of deafness.

Contact made with the Health Chairman of the Illinois Business and Professional Women's Clubs.

SERVICE GIVEN TO COUNTY MEDICAL SOCIETIES:

25—Postal card invitations send for Randolph County.

588—Postal card notices about LaSalle County.

245—Notices about Bureau County.

150—Invitations to members of Jefferson-Hamilton County.

449—Postal card notices of the 9th and 10th Councilor District.

268—Invitations mimeographed for Henry County.

54—Letters sent to secretaries of county societies about health columns in their local newspapers.

175—Letters to physicians concerning subjects to appear on new scientific service list.

NEWSPAPER PUBLICITY FOR MEDICAL MEETINGS:

129—Releases DeWitt County Medical Society meeting with Dr. West.

111—Articles re LaSalle County medical meeting.

50—Articles re Bureau County medical meeting.

32—Articles re Jefferson-Hamilton medical meeting.

76—Articles re to newspapers announcing Pediatrics Clinic sponsored by the 9th and 10th Councilor Districts.

35—Releases of Henry County Medical Society meeting Service to Chicago Medical Society and Branches:

5—Releases to downtown papers about October 23rd meeting.

10—Article to newspapers re two meetings of Englewood Branch.

4—Articles to newspapers re Douglas Park Branch.

4—Articles to newspapers re Northwest Branch.

4—Articles to newspapers re North Shore Branch.
2—Articles to newspapers re Stockyards Branch.
5—Articles to newspapers re Calumet Branch.
6—Special articles to Branch Bulletins about Package Libraries.
6—Special articles to Branch Bulletins about High School Debates on Socialized Medicine.

PRESS SERVICE:

40—Health stories to papers using monthly service.
14—Health articles pertaining to child care to Blackhawk Park Nursery.
634—Health Columns to newspapers outside of Chicago.
78—Health columns to Chicago and suburban newspapers.
54—Health stories to papers using column sponsored by Douglas Park Branch of Chicago Medical Society.
1,130—Mimeographed radio talks on Child Health and Guidance to Illinois libraries.
260—Health columns to libraries.
16—Articles to Chicago Red Cross and Central Y. W. C. A.

Health articles were written and approved as follows:

Simple Fractures.
Heart Facts.
What Quarantine Means to You.
Learn to Use Your Family Doctor.
Influenza.

7—New newspapers were added to the list to receive regular health columns for publication over local county medical society authorization.

Respectfully submitted,
JEAN MCARTHUR, Secretary.

ACTIVITIES OF THE WOMAN'S AUXILIARY

Mrs. Robert E. Fitzgerald, Wauwatosa, Wisconsin, President of the Woman's Auxiliary to the American Medical Association, was the guest speaker at the first meeting of the Woman's Auxiliary to the Chicago Medical Society held the Sherman Hotel on October 2. Her talk stressed the need of the Woman's Auxiliary and the important work it could do.

Dr. Julius Hess, President of the Chicago Medical Society, spoke to us at the same meeting on some of the problems facing medicine today. In his talk he exposed the true facts on the oft repeated statement that so many doctors are on the relief rolls. The investigation of the Chicago Medical Society revealed that there are only six doctors on relief and none are members of organized medicine.

The first meeting of the Board of the Woman's Auxiliary to the Illinois State Medical Society was held at the Palmer House in Chicago on October 19. Mrs. W. D. Chapman, President, of Silvis, presided. This meeting was attended by seven Officers, nine Councilors and ten Committee Chairmen.

Dr. Charles B. Reed, President of the Illinois State Medical Society, read a wonderful paper on "The Social Security Act," in which he explained the provisions of the Act and all the socialistic viciousness contained in it.

Miss Jean McArthur, Secretary of the Educational Committee, gave an interesting talk on the policies and aims of this important Committee of Illinois State Medical Society.

The Board is arranging an active year for the Women's Auxiliary to the Illinois State Medical Society.

MRS. W. D. CHAPMAN,
President.
MRS. PLINY R. BLODGETT,
Press & Publicity Chairman.

TYPE

JAMES H. DEMPSTER, M. D.

During the middle ages when the crusaders undertook their pilgrimage to the Holy Land, they returned from the Orient with a knowledge of three things that have affected western civilization to a greater degree than any other influence brought to bear on it since their time, namely, gun powder, the mariner's compass and movable types. Movable type, the craft of printing, how much it has modified our lives will never be accurately estimated.

However, it is not the purpose of this paper to philosophize on the art of printing but to be more practical. A knowledge of type need not be very extensive so far as the medical writer is concerned, yet it will not be burdensome for him to know a little of the technical detail of printed matter which is of daily concern. Printers have names to designate the various sizes of type. There is a new, as well as an old, nomenclature, something after the fashion of new and old nomenclature in anatomy. We give a few of the old with the corresponding new system in brackets. Nonpareil (6 point), brevier (8 point), long primer (10 point), small pica (11 point). There are a number of other sizes smaller than nonpareil or 6 point, and larger than 11 point, but those given are usually used in medical publications. Display type in advertising is in a department by itself and will not be considered here. Most of the reading matter in The Detroit Medical News is set in 10 point type. Foot notes and bibliographies are usually set in 6 point, and quoted paragraphs in the body of an article are usually printed in 8 point.

DIRECTIONS TO PRINTER

A line drawn under a word or sentence in any of these sizes of type instructs the compositor to set them in italics. Two lines under a word indicates capitals. Three parallel strokes under a letter indicates a capital. However, italics or capitals, used solely for emphasis, do not improve the appearance of an article and it is better when emphasis is desired to secure it by clear statement. Capitals are reduced to lower case type simply by a short line or stroke made diagonally through the letter. The letters "tr" written in either margin of a galley, the name for a long column proof submitted to the author for his revision, means transpose words, or letters in a word, as the case may be.

All corrections of proofs should be made on the margin of the galley opposite the error. Since all composition is done by typesetting machines, the possible errors are reduced in number. For instance, we never see letters turned upside down.

* * *

This final installment will deal with subjects which have apparently little relation to one another.

The matter of libel is to the editor or publisher of a newspaper or journal what malpractice is to a physician. The difference between libel and slander may be loosely defined as follows: Libel is anything of a derogatory or defamatory nature that may appear in writing or in print against a person's character. Slander consists of false or derogatory statements passed around by word of mouth. In other words, libel is printed and slander is spoken. The law recognizes every one's right to protection of his reputation or his character against any defamatory or false statement that would tend to lower him in the estimation of his fellow man. Sometimes his right is more honored in the breach than in the observance. Both slander and libel are emotions involving contempt, hatred or ridicule. In a journal devoted to science, needless to say, emotional expressions are out of place.

The legal definition of the two words goes into greater detail, but the above is quite sufficient for practical purposes. Dean Inge once said, "Criticize opinions and institutions, but do not attack individuals." Observation of this admonition will save both editors and writers many sleepless nights.

* * *

The next thing I would draw attention to is the law of the copyright. Most writers of papers in making quotations credit the source. In quotations made from old books, this is usually sufficient. Many recent works, however, usually facing the title page, contain statements worded as follows: "All rights in this book are reserved, no part of the book may be reproduced in any manner whatsoever without written permission." A writer wishing to quote a paragraph or sentence should communicate with the publisher and obtain permission, which is usually freely granted. The copyright refers also to the protection of original illustrations. The law of copyright is meant to protect the actual literary composition of a writer rather than the thought, which could be expressed in different language. Copyright protection is given not to ideas but to literary forms. Reviewers, however, are permitted quotations within certain limits in the course of writing the reviews of books.

* * *

My third subject refers to case histories. There seems to be no uniform standard for their preparation. Case histories should be written with as much care and thought as the author would devote to the preparation of an original paper. They provide much of the raw material of collaborators who are interested in working up the literature for monographs and text-books. Case histories in order to fulfill their function, should be adequate and concise. All abbreviations which are not readily and universally understood should be avoided. Sentences should not be represented as incomplete phrases. Findings in the examination of patients, which do not bear upon the case should be omitted. For instance, in a case of cancer of the stomach or colon, or of gall bladder disease, it is not necessary to report the vision or the hearing normal. Case histories properly prepared can be real contributions to clinical medicine or surgery. A condensed or hurried style should be avoided; if the case is worth reporting, it is worth doing well.

It is apparent that these brief papers have not attempted to deal with the art of composition which is a matter of years of self training. The purpose has been accomplished if some definite idea is imparted to the reader regarding the way the editor and publisher like to receive manuscripts intended for publication.—*Detroit Medical News.*

SAFER INSECTICIDES FOR VEGETABLES DEVELOPED BY AGRICULTURE DEPARTMENT

Wider use of *pyrethrum* and *derris* seems to be the answer to the grower's need for keeping his leafy vegetables free from residues of the more toxic insecticides, according to W. H. White, in charge of truck crop and garden insect investigation, U. S. Department of Agriculture. Chemists and entomologists of the department have long sought substances that could be depended on to protect growing crops against destructive insect pests and still leave nothing harmful to human beings on the product to be marketed. Although this difficult problem is not yet completely solved, the scientists working on it have found that minute quantities of two plant products—derris and pyrethrum—kill many insects feeding on truck crops and are less likely than most inorganic insecticides now in common use to leave harmful residues.

Derris powder is obtained by grinding the roots of a plant native to the British and Dutch East Indies. Pyrethrum is prepared from the ground flower buds of the common daisy of the Far East. Insecticides made from both these imported products are now on sale in most seed and drug stores in the United States. Plant specialists of the department are investigating the possibilities of growing insecticidal plants in this country.

In tests recently completed, Mr. White says, dusts made by diluting derris root with tobacco dust, talc, or clay were just as effective as arsenical compounds in controlling three common species of cabbage worms in widely separated parts of the country. Derris root powder in water also gave good control of the imported cabbage worm. The dusts, however, gave better results and cost no more than the sprays.

Derris sprays and dusts saved beans from the depredations of the Mexican bean beetle in Ohio and Virginia. Here the sprays seemed better than the dusts.

Pyrethrum dust, mixed with tobacco dust or hydrated lime, preferably the former, controls the celery leaf-tier, a major pest of celery in Florida and periodically troublesome in the North as well. The same

mixture can be recommended also for curbing the celery looper.

Either derris or pyrethrum should be used in combating leaf feeding insects on lettuce and spinach, according to Mr. White. Both protect fall grown squash against the melon worm and the pickle worm. Neither derris nor pyrethrum, however, gave satisfactory results against the tomato fruit worm.

Arsenicals, other than lead arsenate, Mr. White says, may still be used on any of the vegetables mentioned, if they are not applied after the appearance on the plant of the fruit or foliage destined for market and if it is definitely known that all spray residue will be removed by washing or stripping before the product is marketed.

Field sanitation, always an important supplement to spraying and dusting for insect control, is essential in the case of many leafy vegetables. Prompt destruction of all crop remnants removes a dangerous source of infestation of new plantings of cabbage, cauliflower, broccoli, kale, and collards. Destruction of crop remnants is just as vital as thorough and timely spraying or dusting in saving crops from destruction by the Mexican bean beetle. It is necessary also in fighting celery insect pests, especially the celery leaf-tier.

FROM THE APOCRYPHA

Book of Ecclesiasticus—Chapter 38, Verses 1-15.

HONOUR a physician with the honour due unto him for the uses which ye may have of him; for the Lord hath created him.

2. For of the most High cometh healing, and he shall receive honour of the King.

3. The skill of the physician shall lift up his head: and in the sight of great men he shall be in admiration.

4. The Lord hath created medicines out of the earth; and he that is wise will not abhor them.

5. Was not the water made sweet with wood, that the virture thereof might be known?

6. And he hath given men skill, that he might be honoured, in his marvellous works.

7. With such doth he heal (men) and taketh away their pains.

8. Of such doth the apothecary make a confection; and of his works there is no end; and from him is peace over all the earth.

9. My son, in thy sickness be not negligent; but pray unto the Lord; and he will make thee whole.

10. Leave off from sin, and order thine hands aright, and cleanse thy heart from all wickedness.

11. Give a sweet savour, and a memorial of fine flour; and make a fat offering, as not being.

12. Then give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him.

13. There is a time when in their hands there is good success.

14. For they shall also pray unto the Lord, that he would prosper that, which they give for ease and remedy to prolong life.

15. He that sinneth before his Maker, let him fall into the hands of the physician.

Miscellany

ULCERATIVE COLITIS: II. FACTOR OF DEFICIENCY STATES

Thomas T. Mackie, with the assistance of Miss Madeleine Henriques, New York (*Journal A. M. A.*, Jan. 19, 1935), observed evidence of deficiency states in 62.6 per cent of seventy-five cases of chronic ulcerative colitis. These indications find expression in the buccal and lingual mucosa, the skin, the type of anemia and the blood chemistry. When present in advanced degree they have invariably been associated with characteristic changes in the small intestine. Secondary, or conditioned deficiencies appear to be important factors in the pathologic physiology of the disease. Therefore deficiency disease is not to be regarded as an occasional complication of chronic ulcerative colitis. It seems more probable that it constitutes an essential part of the underlying mechanism. With the appearance of indications of deficiency disease the pathology changes; the symptoms become more complex, the clinical picture more severe, and the prognosis more grave. In many instances the evidence does not permit definite evaluation of the part played by single vitamins or specific food substances. The clinical phenomena suggest, however, that the deficiencies are multiple rather than single. Inadequate supply of vitamins A, B_1, B_2 and possibly D, together with lack of biologically complete protein, and of electrolytes, appears to contribute to the complex clinical picture in varying degree. The progress that many of the patients have shown under prolonged observation suggests that the potentially severe and untreated or imperfectly treated case tends to pass through three stages. In the initial phase clinical evidence of deficiency disease is lacking. The second stage is characterized by the appearance of early signs of deficiency. In the third stage, which is relatively rare, deficiency disease is severe and tends to dominate the clinical picture.

SHORT WAVE DIATHERMY: PRELIMINARY REPORT

Frank Hammond Krusen, Philadelphia (*Journal A. M. A.*, April 6, 1935), believes that before short wave and ultra-short wave diathermy machines are used extensively: 1. They should be improved in construction, and the manufacturers should specify definitely the wavelengths of the apparatus and their output in watts. 2. Fire hazards should be eliminated. 3. An accurate method of measuring dosage should be perfected. 4. More data concerning the physiologic effects of the waves they produce should be amassed. 5. The idea that the apparatus is simple to operate and that treatment may be given through the clothing should be dispelled. 6. The technic of application should be improved so that the danger of burning sensations is lessened. It would seem that with further study by physicists and engineers concerning the proper methods of constructing apparatus, and with further clinical investigation by especially skilled physicians in hospital physical therapy clinics, short wave diathermy may prove to be a useful therapeutic agent. But at the present time

many of these devices have not been sufficiently perfected, and it must be confessed that knowledge of the exact physiologic effects of these waves is very limited. Extensive employment of these machines at the present time can lead only to unsatisfactory results and may cause condemnation of a method of treatment that might otherwise be found serviceable.

CASE OF PATRICIA MAGUIRE

Eugene F. Traut, Oak Park, Ill. (*Journal A. M. A.*, April 6, 1935), reports the case of Patricia Maguire, aged 26, who within a period of three weeks (previously healthy) developed stupor accompanied by fever, leukocytosis and bacteremia. The spinal fluid was clear but showed pleocytosis, increased globulin and an abnormal colloidal gold curve. The febrile stage and the deep stupor lasted three weeks. Various chemicals, vaccines, serums and hyperpyrexia were used. They are not known to have altered the course of the illness. Excepting occasionally scopolamine for sleep, she has had no medication since Feb. 28, 1934. She was given more than 1,000 feedings by nasal catheter without developing aspiration complications. The patient is very well nourished and has good color. Her muscles are large and strong. She has not spoken or made any purposeful movements except those of defense. She lies inattentive with shut eyes most of the time. The pupils do not react to light or in accommodation. The left great toe is constantly and rigidly hyperextended. She is fed by spoon or a catheter in the mouth.

THERE ARE THOUSANDS OF DOCTOR DAFOES ON EARTH

There are thousands of Dafoes on earth. One of them years ago wrote Robinson Crusoe and probably made money on the deal. One delivered quintuplets at Callander, Ontario. The other thousands will remain unheralded and unsung, and in many cases, unpaid. They are the rural practitioners who are daily accomplishing feats that the doctors of metropolitan centers would never attempt except on their "home grounds." No, they are not perfect, but they do the best they can and perhaps better than would we under similar conditions. They are not just "country doctors," they are marvels.—Medical Bulletin S. C. M. S.

THE STIMULATORY ACTION OF BILE SALTS ON THE LIVER

Nathaniel Goldstein of Brooklyn, N. Y., says: It has been known for some time that the bile salts exert a stimulatory action on the liver. Thus Sollman says, in his manual on pharmacology: "The only real, effective stimulant of bile formation is the administration of bile or bile salts." Cushny, in his textbook on pharmacology, affirms: "Bile is the only reliable cholagogue known." Further he states: "Most of the bile given by mouth is absorbed in the intestine and carried to the liver, which excretes it again, while a small quantity of the bile escapes in the urine. In the liver it increases the secretion of both the fluid and solids of the bile."

ENDOMETRITIS

Remember that the starting-point of inflammatory affections of the uterus is, usually, the endometrium, and may extend, eventually, to the muscular wall or to the peritoneum. Thus the uterine mucosa is the origin of nearly all of the inflammatory lesions of the pelvic organs.

Remember that all inflammations of the endometrium may be divided into the infectious and non-infectious.

Remember that septic endometritis is nearly always found following abortion and labor. It may follow insertion of instruments into the uterine cavity or operative procedures upon the cervix.

Remember that in acute endometritis there is a leukorrhea, sometimes profuse; or it may be thin and serous.

Remember that the history of a previous operation on the uterus or instrumental treatment should suggest endometritis.

Remember that sterility and abortion are very common in endometritis, caused by the changes produced in the mucosa by the disease.

Remember that the general physical condition of the patient varies. She may experience no ill feeling, or she may be hysterical, complain of dyspepsia, flatulence and loss of appetite.

Remember that the speculum reveals the origin of the leukorrhea and usually the cause of the endometritis, such as a torn cervix.

Remember that the gonorrheal variety of endometritis is due to the presence of the gonococci in the endometrium.

Remember that in the normal state the *cavum uteri* is absolutely free from pathogenic micro-organisms, hence infections must come from without. These may occur by the organisms ascending from the vagina, as is seen with the gonococci; or by manipulations at labor or at time of an abortion; or the most common method is by instruments introduced into the uterus.

Remember that the organisms most frequently found are the gonococci, the streptococci and the staphylococci. Infection by other organisms is not so common.

Remember that miscroscopic examination reveals the organism causing the endometritis and should always be made before any opinion is given by the physician as to whether it be a gonococcus or streptococcus infection.—George B. Norberg, M.D., in "Golden Rules of Gynecology."

THE CLIMACTERIC

The climacteric is not merely a syndrome of genital insufficiency, but the biologic consequence of a complex and constant endocrine crisis, the nucleus of which is the genital subsidence, but in the development of which all activities participate. All these general characteristics of the climacteric period are the reflections of a parallel state of functional irritability in the ovary, thyroid, suprarenals and other ductless glands, which are the fundamental glandular elements entering into this crisis.—Dr. Ethel M. Hite, in *N. E. M. A. Quarterly*, June, 1934.

Original Articles

THE SOCIAL SECURITY ACT AND THE DOCTORS

Charles B. Reed, M. D.
CHICAGO

Two widely antagonistic forces are striving for dominance in America. On one side, is the desire and purpose of the individual to live his own life and carry his own responsibilities and secure the utmost mental and material development, while on the other is a conspiracy to have the people subjected wholly to herd ideas whether advantageous or otherwise—with only an inner certitude, a personal sense, necessarily imperfect, that the way the herd is directed is also the best way. The contest is between individuality and regimentation— and while regimentation with its attendant oppression has secured high place among the confused and decadent nations of Europe it will be fought bitterly in an America which has grown great through private initiative. Washington authority is doubtless aware of this but the immediate effect of this latest whimsy is to create an exhaustive military regimentation which will eliminate every act in science, art, industry and the family which is not supervised by a political appointee.

The doctor is by instinct and training an individualist and sometimes so zealous that he is reluctant even to join his fellows in a common aim but there is no field where such an attribute is more essential than in medicine. With proper professional equipment and wisdom the doctor should be free to exercise his best judgment in his gallant struggle against disease and death and to bring unhampered all his skill and experience to succeed in his daily combats with life's enemies.

Regimentation on the other hand deprives the average mind of all chance of growth and the aspiring mentality of all hope of fruition. Simultaneously it diminishes that superb efficiency which develops when a person responds to the normal incentives to happiness and success; incentives that arise from an inherent consciousness of a personal importance in the world of affairs.

Such individualism undoubtedly has often been carried to an extreme by zealous medical men. In their desire to conquer disease and help humanity they have become the slaves of charity. They give as always of their services gladly to the poor. Even before the war doctors of Illinois gave gratuitously medical and surgical treatments to the value of $18,000,000 a year and since that catastrophe the profession has been strained to the utmost in time, service and money. Yet the salaried altruists prate to the doctors about philanthropy—to the doctors, mind you, who almost invented this ministry.

The time honored attitude of the medical profession toward the indigent sick is well known, too well perhaps, and often imposed upon by such apostles of regimentation as the foundations, the salaried altruists, the social theorists and "charity brokers" who are anxious to enlarge the organizations they conduct and increase their personal prestige. Many institutions and at present many supervisors in the Emergency Relief service vie with one another to secure a numerical increase in their dependents for the enlargement of their personal perquisites and importance. The pose of Lady Bountiful is an expression of vanity and complacent superiority which has many satisfactions for those who can exercise it at the expense of others and be rewarded in addition not only in spirit and in money but in the golden aura of Government repute.

The principle is fallacious and unworthy. We should as reasonably expect the prisons and asylums of the State to compete for inmates. Such shameless avidity can only result in injury to the personal pride, self esteem and to mental deterioration of the victim. A worthy citizen is entitled to adequate aid until he is competent to carry on but as soon as possible the support should be withdrawn lest his morale be broken down, his motive power destroyed and a chronic dependency established.

The practice of charity is one of the most ancient and glorious traditions of medicine but the profession is aware that this phase of their calling is not infrequently misunderstood or abused by the undeserving, for that charity is pernicious which takes from independence its proper pride and from mendicity its proper

shame. The abuse of charity leads for the physician to pauperization of the body and for the patient to the even more serious pauperization of the soul. The abuse of charity moreover arouses the indignation of the doctor since every such case of malingering prevents the extension of legitimate aid to a worthy object. Loss of morale is an invariable consequence where high and hopeful qualities are regimented. The exercise of charity which has always been cherished as a laudable virtue has now become an organized and remunerative industry in the hands of social theorists who under the mask of humanity hoodwink the government, prey upon the doctors, exploit the poor and weaken or destroy the virile American traits of self respect, resourcefulness and resolution. The charity which is dispensed for a price is self interest rather than benevolence.

With a full knowledge of these conditions the medical profession has been striving to correct social evils, accommodate its work to the changing face of society; and adapt its practice to the gradual mechanization and industrialization of American life. New forms of medical procedure are being tested in nearly all the states and unusual plans for medical service are being introduced.

These experiments cover in some degree every aspect of medical work and while some are conducted honestly and ethically others are devised exclusively for a private advantage. Schemes of medical and hospital insurance, free and pay clinics—medical care for a fixed yearly fee, contract practice and corporation practice are the most common examples.

Corporations, casualty companies and insurance societies are usually the outgrowth of lay efforts to exploit the medical man but in California and Washington, in Michigan, Massachusetts, Utah, Georgia, Virginia, Ohio and other states sincere efforts are being made to change the character of professional activity without a corresponding loss in that quality of competence and efficiency which stands highest in the world today. Some of these hundred or more projects under trial by county societies have been tentatively indorsed by medical authority and if allowed to develop will in time find a proper and satisfactory adjustment.

These methods of careful experimentation, however, are too slow for the social theorists and salaried altruists who want the world revamped according to their own vaporous fancies while they still are able to enjoy the expected prestige and the financial compensation.

They are possibly aware that the earth is some 150,000,000 years of age and alters slowly, but hope nevertheless to bring about a radical reversal of social conditions in a few intense unnatural months. The Utopians and the social theorists have always existed but the salaried altruists and the "charity broker" are purely modern productions. They belong to that large company of adventurers who prefer to exploit the assured rather than to explore the unknown. Thus they strive for regimentation of workers and employers, of proletarians and scientists and of physicians who are all four, by fiat. They visualize a large, clean, orderly housekeeping plant with themselves at the head and all other ambitions and means of development abolished, or subordinated to their personal theories regarding the method and direction which evolution should pursue and where remuneration could be most worthily and satisfactorily bestowed.

"It is one of the strange freaks of human nature, and one of the tragedies of government," says Senator Borah, "that many men who through political accident secure office, immediately become obsessed with the idea that they are the sole custodians of American principles, the sole guardians of American institutions and the exclusive possessors of American ideals."

The immediate goal which the salaried altruists hope to attain in medicine is socialization. This is a menace both to medicine and to the public. It is a most important factor however in their plan for the only social advance that ever obtained recognition was won by way of medicine. This is the first step therefore in a purpose openly or hesitantly admitted at Washington, to kill our democracy and substitute a collective form of Government which will reduce the entire productive portion of the population, as well as their guardians, to the level of serfs. This being accomplished the serfs can be put to work to support the lazy, the thriftless, the incompetent and the subnormal who are the particular pets and the most hopeful beneficiaries of the salaried altruists in their experiments. The most ominous feature of this

reactionary program is the effect upon the hapless victim who is arbitrarily deprived of pride, ambition and every incentive to serious effort. He is reduced to a soft, sloppy, gelatinous existence wherein only two primeval desires survive—to eat and to breed.

Mr. Laski thinks, apparently with the ardent sympathy of *Harper's Monthly,* that the medical profession is in decay because it is not communistic when in fact it is for this reason that it lives.

Communism is a beautiful theory but it is no more than that. It failed dismally to work even with Mr. Alcott and a few such high-minded enthusiasts as composed the Brook Farm Experiment. The fallacy in disinterested communistic thinking lies in the assumption that all human nature is unselfish and eager to work for the universal good. Human nature is not yet sufficiently angelic to do this as the Emergency Relief has conclusively demonstrated to every mature and unbiased mind.

If two people, a man and wife perchance, cannot adjust themselves to each other for more than a few years as the divorce courts reveal, it is too much to expect that the people of this country will calmly accept regimentation or that they will sacrifice themselves willingly for 25,000,000 aliens and strangers who will not do their share; who persistently refuse work and even sell their motor cars in order to get on Relief. The Social Theorists unconsciously or preversely overlook this impossible human element.

Mr. Laski refers with pride and confidence to the Russian experiment as if it had succeeded materialistically despite its extirpation of intellect. Yet Mr. Filene, a Russianized American, moved Heaven and earth to find an American doctor when he was taken ill in the very midst of his Russian icons. Senator Lewis too, betrayed the same distrust of a system which had expelled, or slaughtered its intelligentsia. Probably Mr. Laski and his communistic congeners would also abandon their woozy conceits in a similar realistic emergency—temporarily at least.

Such action would be very wise for human nature being what it is, the Russian doctor, or *any* doctor, under conditions of life wherein a premium is put on physique and irresponsibility and a penalty on intellect will revert to the barbarism which obtains in Russia with a complete annihilation of the professional ethic. Similar disasters also follow every attempt by a democratic government to control such public enterprises as railroads and air craft.

Social subversion was attempted once before, though very cautiously, by the passage of the Sheppard-Towner law which the states of Connecticut, Massachusetts and Illinois had sufficient pride, at that time, to reject—although they paid their tax.

Socialization of medicine is state medicine, and the latest attempt in this present upheaval is the passage of the Social Security Act. This act has a more plausible approach and a deeper rouge to hide its vaster viciousness, its more incisive teeth and its more dangerous political purpose than its predecessor. It is open, however, to the same objections and should receive the same thoughtful and united opposition.

The enabling act should not pass the Legislatures but since it is very probable that this bill will be forced upon the medical arm of the states through political pressure of one kind or another it is not unwise to study its provisions and discover the evils which medical men and our people must meet and suffer. The act calls for service to the blind, the aged and the unemployed as well as to maternal and child health, crippled children, child welfare, vocational rehabilitation and public health work. Such a bill presents an innocent philanthropic appearance and a most misleading title which suggests the banking and trust companies of 1929.

Obviously the medical profession has a direct and immediate interest in any scheme which is intended to transfer the ultimate control of intra-state sanitary and medical activities from the proper authority in the commonwealth to a Washington Bureau, and to a lay management either male or female—probably the latter.

Medicine, like individual liberty, is fundamentally an expression of the ethical life, and medicine suffers injury whenever and exactly to the degree in which its liberty is invaded. In the following discussion all reference to the ten principles[1] laid down by the Judicial Council of the American Medical Association for the protection of the public is omitted since they have been intentionally disregarded and taken from consideration by the proponents of the so-called "Security Act." This bill therefore must be discussed from other viewpoints.

To elaborate: This act is speciously advanced for the ostensible purpose among others of stimulating and aiding the states in promoting the health of mothers and infants. It denies that aid however to any state which will not submit its activities to federal bureaucratic control and match the federal bribe. Its solicitude therefore is either venal, or subversive. It is a direct and ill advised attack upon the public welfare.

In effect the Act empowers the Government to use money collected by taxation from all the states to induce or compel as many states as possible to cede to a bureau at Washington their inherent right to supervise and control the hygiene of maternity and infancy within their borders. The supremacy of the State Governments in matter of health is conceded practically by the federal authorities and while such a governmental interference is manifestly unconstitutional and generally admitted to be so by legal experts, yet in the challenge to the Sheppard-Towner Law, the Supreme Court refused jurisdiction. The present court may not be so gracious when the bill comes before it.

One reason advanced for the passage of such an act is that the maternal and infant mortality and morbidity of the United States is *excessive* as compared with that of other countries—countries wherein the statistics are very differently collected and analyzed.[2]

This charge never has been and cannot now be substantiated. Nor is it probable that the statistical figures quoted could be reduced, even if true, through legislative action by the federal government any better than by the states legally responsible therefor. In fact such interventions have failed to function satisfactorily in every country where government control has been forced upon the people. This is especially notable in Germany where medical progress has been absolutely arrested.

Experience with the Sheppard-Towner Law has demonstrated, as statistics show, that the mortality and morbidity rates are just as low or even lower in the states which did not stultify themselves by accepting federal aid as in those conforming states that ceded their constitutional birthrights for a mess of pottage.

The proponents of this act have produced no evidence that the health officers of the several states are less solicitous or more ignorant than the federal officers who will supervise them. There is no evidence that the people of any of these states, certainly not all of them, are so callous and indifferent as to require federal stimulation to supply medical care for their neighbors or that the state is too poor to allow of it. (Woodward.)

Furthermore, the Social Security Act has considerably broadened its scope as compared with the former bill. Besides giving artificial emphasis to maternal and infant hygiene it is so loosely worded that efforts to control practically all public health work are not only permissible but probable. This will include supervision of the milk, the water supply, food inspection, housing and sewer systems as well as venereal and other contagious diseases which may be and indeed are a vital part of maternal and infant welfare. Although not specified explicitly these are logically a proper function of maternal and infant welfare and will be so regarded. Apparently the public health officers of the state will of necessity become entirely superfluous.

The Security Act provides for arbitrarily allotted bonuses which are distributed equally to every betrayed and subjugated State without any reasonable relation to the hygienic needs but rather in accordance with the ratio of live births. In the Sheppard-Towner Law, the State of Oregon with an infant mortality of 53 per thousand did not require so large a bribe as South Carolina with its rate of 102; or Utah with its *maternal* mortality of 4.5 as much as Florida with a rate of 12.1 per M., but they received the same price for their unscrupulous betrayal of the State's legal prerogatives. Furthermore the present Act holds the complying State in perpetual pawn for the probationary dole can be withheld or withdrawn on the slightest pretext or the least sign of political disfavor.

Moreover, the success of the Security Act in increasing State aid is wholly problematical and open to various forms of evasion which cannot be controlled. For instance, a sum appropriated for prevention of contagious disease is not inherently a grant which would meet the federal requirements but since such an allotment is partly in the interest of women and children the State can at its convenience charge it wholly to that object as a bait for the federal bribe.

There are other reasons just as cogent for

invalidating a submission to this Act but they are as useless probably as the sheep's reasons against the greed of the hungry wolf, for the federal government has resolved to seize and centralize power as far as the Supreme Court will permit, even farther if possible. No Government can long exist without coveting the money of its citizens and as the ardor of acquisition increases agents of government soon begin to search hither and yon for money with the undignified eagerness of a dog biting fleas.

One of the principal objections of the Act is that it is wholly unnecessary. Statistics published by the League of Nations show clearly that the United States had a lower general death rate and a lower infant death rate in 1933 as well as a lower mortality and morbidity rate from diphtheria and tuberculosis than any first class power from which data were available. (And in Illinois less even than the average.) Since 1933 health improvement has been more rapid in America than in other large nations where public health is governmentally supervised. Moreover, any action by congress or other inconsiderate agency will lessen or destroy a medical efficiency of which the States may well be proud. If one has a good machine why turn it over to an incompetent, heedless, or self indulgent driver whose mischievous operation merely destroys the mechanism?

As the dissenting minority report in the Cost of Medical Care very properly declares, "There is nothing in experience to show that State Medicine is a workable scheme or that it would not contain evils of its own which would be worse than those it is supposed to alleviate. Above all there is no evidence to prove that it would accomplish what ought to be the first object of this Committee, a lessening of the cost of medical care."

The attempt to centralize in Washington the management of affairs that of right belong to the respective states is to create a system which inevitably destroys our democracy and betrays the fundamental principles of our government. If one constitutional right is abrogated by purchase or political pressure the others are not safe. In health matters this is particularly dangerous for in a very short time politics would have its finger on the wheel and inherent in politics are graft, stupidity, incompetence, intimidation and everywhere the suppression of individual enterprise and medical responsibility associated with a rapidly increasing tax rate. The inevitable rise in taxation must be emphasized for those who resent the present imposts since taxes in the immediate future will remind the Biblical student of that King of Israel who said, "Whereas my father did lade you with a heavy yoke, I will add to your yoke. My father chastised you with whips but I will chastise you with scorpions."

Regimentation of medical men under state control means unmistakably that the science of medicine is to be dragged in the gutter of political robbery at the behest of social theorists and sentimental perverts. The ritual of the weak spirit dominates the vision of the sentimentalist who like a sickly woman loves to finger—and to defile—the gorgeous livery of the Lord.

Sentimentality has never been successful in preventing politics from making a mess of public affairs nor has it hindered in any degree the besmirching and debauching of the school system. Is it probable that sentimentalists, social theorists, or salaried altruists will in any way obstruct contamination of medicine by political grafters even if their attention is arrested by it? "It will be a sad day for society," said President Wilson, "when the sentimentalists are encouraged to suggest all the measures that shall be taken for the benefit of the race."

Furthermore when federal and state governments undertake concurrent jurisdiction, the commonwealth practically surrenders its prerogatives and lets government dominate and perform those functions that are inherent and statutory to the State. Where Government has assisted Government eventually controls. Also when once a bureau is established it grows and expands and demands more and more support from taxation until government is driven to "whoopee' methods with the bread and circuses that undermined the morale of its citizenry and led to the fall of Rome.

Bureaucracy through liberal federal grants even now is sapping the vitality of the States and breaking down their moral and political independence. Bureaucracy is the slave of politics and results in a chaos of inefficiency. Under the so-called "Security Act" bureaucracy will destroy the initiative, the resourcefulness and

ambition of the medical man. Bureaucracy is always a curse, like a receivership in bankruptcy, and if once established in the practice of medicine it will emasculate efficiency and paralyze progress.

"The course we are now pursuing," says Senator Borah again, "will prove in the long run more dangerous than a foreign foe. A proud, strong nation may suffer a reverse in arms but time may still find it triumphant. An independent and self reliant people may be overcome by fortunes of war but time fights on their side to a final victory. But a nation whose citizenship has been drugged and debauched by subsidies and gratuities and bonuses—a nation which has surrendered to the excesses of a treasury orgy, has taken the road over which no nation has yet been able to effect a successful retreat."

In conclusion, we must endorse the opinion expressed in the ILLINOIS MEDICAL JOURNAL that "We have no sympathy with paternalism or unwarranted dependence on a grandmotherly State either in medical or commercial affairs. We are a staunch supporter of State rights, of local autonomy, of private initiative and neighborly cooperation. Bureaucratic administration is a menace to personal freedom and social progress" and we may add also that it spells ruin to medical efficiency.

State Medicine cannot change human nature though it may alter relationships. Independence in medical practice is as essential to the happiness and prosperity of doctors and to the advance of scientific medicine as independence in citizenship is to the welfare of government, and this priceless independence should under all circumstances be sacredly preserved to the people of "these United States."

30 North Michigan Avenue.

1. THE TEN POINTS SUGGESTED BY THE JUDICIARY COUNCIL OF THE AMERICAN MEDICAL ASSOCIATION

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a duly qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

MORTALITY AND MORBIDITY, 1933

	All Deaths per 1000 Pop.	Infant Deaths per 1000 Births	Diphtheria per 100,000 Pop. Deaths	Diphtheria per 100,000 Pop. Cases
United States	10.7	59	3.9	39
Germany	11.2	76	5.6	114
England and Wales	12.3	63	6.3	117
Scotland	...	81	7.2	180
France	15.8	75	..	50
Irish Free State	13.6	65	12.9*	113
Poland	14.2	128	17.0*	52
Illinois	10.5	49	1.7	22

*1932.

THE DIAGNOSIS OF MESENTERIC LYMPHADENITIS

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In the past few months, several articles have been published in medical journals indicating that increasing attention is being paid to the subject of mesenteric lymphadenitis. My own interest in this pathologic entity extends over the past eight or ten years, and includes 86 cases that have been diagnosed as such.

The early literature upon this subject was

Read before Section on Surgery, Eighty-fifth Annual Meeting Illinois State Medical Society, Rockford, May 22, 1935.

greatly influenced by the German writers who were of the opinion that these enlarged glands were tuberculous in origin. Until quite recently, most writers have stated that all, or nearly all, of these cases were tuberculous, and that any exceptions were uncommon. Further investigation of the pathology found in enlarged mesenteric lymph glands has given evidence that while a tuberculous lymphadenitis does exist, it is, in this country at least, of quite rare occurrence.

Struthers, Miller and Oehmigen believe that tuberculous infection is common while Speese, Heussen and others consider it to be rare. In 1922, Leonard Freeman gave a paper before the Western Surgical Association in which he considered this subject in connection with the diagnosis of acute appendicitis. His article marks the beginning of the present day attitude which regards this condition as one of the acute abdominal entities that has to be considered in making the diagnosis of acute appendicitis.

Acute mesenteric lymphadenitis is a condition which is being found with increasing frequency in patients with acute abdominal symptoms and it consists solely in an enlargement of the mesenteric lymph nodes. These nodes are more numerous in the right half of the abdomen than the left; they occupy a considerable amount of space in the mesentery, and they become larger and more numerous nearer the mesenteric root. The pathology found in the abdomen at operation varies according to the number, size and location of the glands. Sometimes they are enlarged throughout the length of the mesentery, while in some cases they are limited to the ileocecal region. As a rule, individual glands are seen scattered irregularly through the mesentery, but sometimes they are so numerous as to appear confluent. They vary from the size of a pea or smaller, up to the diameter of a 50 cent piece. Mead, in an excellent article published recently in the *Archives of Surgery,* has shown that the apparent size of a lymphatic node is fairly indicative of its weight. Fluctuation and suppuration were never present in my own series, and the glands were freely movable between the layers of the mesentery. Tissue about them is not irritated and lymph vessels are not enlarged nor palpable. There is no edema, infiltration nor fixation as in other inflammatory conditions. Microscopic examination shows only lymphoid hyperplasia, with no evidence of tuberculous or other infection. A few cultured glands gave negative results. In cases seen during the summer months and when diarrhea was also present, the peritoneum was injected and some free fluid was present, the ileum was mildly injected and in one case the terminal portion evidenced an acute ileitis. One patient who had acute symptoms two months after recovering from an attack of typhoid fever, had glands present and gross evidence of her recent disease.

Since none of these cases were found to be tuberculous and since no evidence of tuberculosis has appeared in those who could be followed up, speculation as to the possible cause, and the route of lymphatic gland involvement, presents some interesting possibilities. The association between acute tonsillitis and appendicitis has been reported by Brenneman and referred to by many others. Goldberg and Nathanson have cultured hemolytic streptococci in a small percentage of glands examined in their series of cases, and have found streptococci present in a high percentage of throat cultures. In my own series of cases, sources of infection seemed possible from either the respiratory system or the intestinal tract. Nearly all cases had some recent antecedent infection. In the winter and spring months this condition was found chiefly in children and a few young adults, who had infected tonsils, or a recent cold. About 90% of these had enlarged cervical glands present. Some had an acute bronchitis at the time of operation. In the summer months, the majority had been preceded by an attack of diarrhea, usually a week or ten days before the onset of acute symptoms. Since there has been a demonstrated preceding infection in over 90% of this series, it seems quite logical to assume that this "Mesenteric Syndrome" is due to a generalized lymphadenopathy following a streptococcus infection, or more probably to the absorption of toxins of these bacteria that have been swallowed.

Most of the patients have been children or adolescents, with a fair number of young adults. The youngest was four years of age and the oldest, 37, the average age being about 14. The total number seen was 86, of which 78 were verified by operation. Eight cases had the same clinical findings, but operation was not done, so

in this group there may be some question as to the accuracy of the diagnosis. Some of the children were pale, underweight and anemic, but there were more who were rugged and in otherwise good health. Over half had had repeated mild attacks of abdominal pain, prior to the one that brought them to the hospital, and they are particularly interesting in view of the ultimate results.

Pain is the one constant symptom. This usually comes on gradually with increasing severity, with colicky paroxysms. In the beginning it is often mild and as a rule is not as severe as in the average case of acute appendicitis, but there were many children who had paroxysms that were quite distressing and a few had pains that resembled a kidney colic in severity. One boy of 20 had an acute attack of pain at 10:00 A. M. and when seen at noon, the pain was of such intensity that a perforated ulcer was considered as one of the diagnostic possibilities.

Nausea and Vomiting are quite common, particularly in the older patients, nausea being noted in over 60% and vomiting in 25%.

Temperature usually ranges from 100° to 101°. The minimum was 99° and the maximum 103°.

Leucocytosis was usually present, averaging around 11,000 but in one case was 30,000. Many cases had a normal white blood count but it usually varied in proportion to the temperature present.

Rigidity is not always seen, although in an occasional instance the abdomen is very rigid. It usually appears as a slight spasticity of the right rectus, which varies in degree, being present at one examination and absent at another.

Abdominal Tenderness, in my experience is the chief method of differentiating between acute mesenteric lymphadenitis and appendicitis. In most cases of acute appendicitis, the tenderness is definitely localized to the right lower quadrant, and usually to McBurney's point. Rebound tenderness is quite constant, and the further away one presses from McBurney's point, the less the tenderness becomes. In acute mesenteric lymphadenitis, however, the tenderness is quite generalized. There may be a tender area over McBurney's point, but there is also another corresponding area on the left side. One side is often as tender as the other and a moderate amount of tenderness is present in the upper abdomen, also.

Urinalysis is essentially negative although when vomiting is pronounced, acetonuria may occur. The tonsils are usually infected and enlarged. A great number, over 90% in the winter and spring months, revealed streptococci in cultures and smears. Most of these also had numerous enlarged cervical glands. So much so, that we now consider mesenteric lymphadenitis as a possibility in all young people with addominal pain, who have enlarged cervical glands.

The course is brief, two or three days being sufficent to bring about improvement, whether or not operation is done.

A check up on the pre and postoperative diagnosis indicates that this condition is clinically indistinguishable from acute appendicitis in a great many cases. This, however, should not discourage us from an attempt by further study, to improve our diagnostic ability, and to learn more about this frequently overlooked condition. Of the 78 cases operated on, 32 were diagnosed preoperatively as acute appendicitis. A normal appendix was removed and the enlarged mesenteric glands demonstrated. One case was complicated by an acute cold, one by a sinus arrhythmia and one by an acute pyelitis, but all recovered. Thirty cases diagnosed correctly as acute mesenteric lymphadenitis, were operated on, the glands demonstrated and a normal appendix removed. In several of these, a single gland was removed for microscopic study. All recovered. Sixteen cases presented the unexpected combination of acute appendicitis and acute mesenteric lymphadenitis. In 10 of these the preoperative diagnosis was acute appendicitis but in the remaining six, it was acute mesenteric lymphadenitis. In these six cases a laparotomy was done because of our feeling that an appendectomy should be done in every case where lymphadenitis is diagnosed because of the high percentage of diagnostic error, but we fully expected to find nothing more than a lymphadenitis. Four of the 16 had peritonitis and one of these died of paralytic ileus. Several had suppurative appendicitis in which perforation had not yet occurred, and in these cases, the presence of adenitis may have been secondary to the appendiceal inflammation. The absence of adenitis in other cases of appendicitis, makes this sup-

position uncertain. There have been several other cases, not included in this series where mesenteric lymphadenitis was diagnosed or suspected preoperatively but which at the time of operation were shown to have no glands present and where the trouble was due to an acute appendicitis.

In addition to this series, we have seen eight cases with mild abdominal symptoms, general abdominal tenderness and cervical adenitis in the presence of acute respiratory infection.

Here acute mesenteric lymphadenitis was diagnosed and conservative treatment was recommended chiefly because of the extent of the respiratory trouble, making them poor risks for abdominal section. All these recovered in two to five days.

The outstanding points of interest have seemed to be the association of this condition with acute respiratory infections in the winter months, and with intestinal infection in the summer. Its occurrence in the presence of suppurative appendicitis, makes one consider the possibility that in these instances the glands may have been secondary to the appendicitis. The contrasting fact that in most cases of appendicitis there are no glands present, makes it appear that in this group they were probably an incidental affair, produced separately and in no way connected with the appendicitis.

The postoperative course in our experience has been quite satisfactory. One writer stated that his patients had postoperative recurrence of the symptoms, but this has been contrary to our own observations. Many of the children reported here had several attacks of abdominal pain previously. One young woman in particular had been compelled to quit work for three months because of the recurrent pain and associated ill health. Following the removal of a normal appendix and the removal of one mesenteric gland for diagnosis, she has recovered and returned to work, being free from symptoms for over two years. In all the cases that could be followed up, there has been a definite cessation of symptoms and a return to health, dating from the operation. It is quite obvious that the removal of a normal appendix could not account for this and it seems quite possible that the mere reaction of healing following an abdominal section, may have an effect similar to that which occurs after a laparotomy for tuberculous peritonitis, where recovery is not uncommon even though the infection is not removed. Whatever the cause may be, the patients have often dated their recovery from the operation.

Postoperative treatment has varied from routine x-ray therapy to the abdomen and tonsillectomy in the earlier cases, to ordinary postoperative care in the later ones. The end results have been equally good, although in theory, tonsillectomy appears to be indicated. A few cases have been found where mesenteric lymphadenitis occurred in patients who had had tonsillectomy done previously.

It has seemed possible after seeing several cases close together, to be able to diagnose this disease correctly in a fair percentage of the patients. However, when one considers the high percentage of diagnostic errors made and when one further considers the lethal possibilities of a mistaken diagnosis, when appendicitis has to be kept in mind, there seems to be only one possible conclusion. This is that when one sees a patient with the symptoms just enumerated, he should consider acute mesenteric lymphadenitis among the diagnostic possibilities, and should attempt to diagnose it correctly when possible. The treatment should, with very few exceptions, consist of an exploratory laparotomy and appendectomy on the basis that it is better to remove a few normal appendices in the presence of a condition that seems to be distinctly benefited by surgery than to jeopardize the patient's life by delaying in the presence of a possible appendicitis.

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DISCUSSION

Dr. Julius H. Hess, Chicago: I have been interested in the question of abdominal pain in children for a good many years. I want to compliment Dr. Coleman on this excellent presentation. I do not believe that there is anything that causes the general practitioner as much distress as abdominal pain. As Dr. Coleman said, the greater part of his subjects were young children. The pediatrician's interest in this problem in this part of the country was awakened by a paper by Dr. Brennemann published in 1921. The subject of that paper was "Abdominal Pain in Sore Throat." Brennemann told us that surgeons about the country were operating on too many abdomens that did not need surgery, and he set out to set them right. We pediatricians decided that Brennemann was right. As we went along we saw some cases in which delayed operation resulted in serious complications. In 1927 Brennemann wrote a second paper on "Abdominal Pain and Sore Throat in Appendicitis." The second paper was written because he believed that the internists took his first paper too literally and he wished to correct the impression created.

I divide my own cases of abdominal pain largely into two groups. First, the so-called colic and abdominal pain we see in the older infant and rather young child, usually before the age of four or five years. We all know that the appendix has a great deal of adenoid tissue in the early years and that it decreases in amount as time goes on. Whether most of those abdominal pains and colics we see in the young are due to secondary involvement of the mesenteric glands and the adenoid tissue in the appendix or to some other factor it is pretty hard to say. I am sure that no one etiologic factor covers the group. We see very few cases of inflammatory appendicitis before the third year. If any of you have the opportunity to see an autopsy in a young infant, if you will look at the appendix you will see that that part of the appendix proximal to the bowel is not of the same caliber as that more distal, but is funnel shape and consequently empties much more easily. Dr. Jaffé in discussing appendicitis in children said he had seen very few obstructive cases with ulceration and gangrene in infants and children under three years of age. We undertook to look up our material and found eight cases under 3 years of age in which there was definite gangrene covering a period of about eight years in our hospital. These cases are not very frequent. Generalized peritonitis not secondary to appendicitis is far more common.

The second group, usually older children, who have repeated attacks of abdominal colic are commonly a neurotic type of individual with enlarged tonsils and adenoids. This is not the suppurative type of abdominal pain. Many of these children have allergic conditions and all no doubt from time to time have infectious processes.

The type that Dr. Coleman mentioned calls for a test of our diagnostic ability. The leucocyte count will run from normal up to 30,000, depending upon the individual response in different types of infection and the tissues involved. Those with low leucocyte counts may be the ones that have the worst intra-abdominal pathology. It takes a good deal of foresight to make a diagnosis. If there is one place where careful study of the history and findings is indicated, it is in these children. You all know the symptomatology made classical by Murphy in his description of appendicitis. The classification of abdominal pain, nausea and vomiting, localized abdominal pain and ridigity does not apply in these young children. Dr. Coleman has spoken of repeated attacks of abdominal colic in many of these patients preceding this rather acute thing he is describing. The past history in a child's life is of great importance. Having such a history before you, whether it is positive or negative, as far as abdominal things are concerned, it is up to us to sit at the bedside and study the child as far as the present attack is concerned. Most of them follow acute upper respiratory infection, others may be only allergic manifestations. A considerable number follow in the wake of intestinal infection. The intestinal group is far smaller in my experience than the upper respiratory. At the University of Wisconsin they studied a number of cases of appendicitis which they saw at different seasons of the year. They found appendicitis far more frequent during the months in which upper respiratory infections were more common. As Dr. Coleman has said, one thing that has been most helpful to him and it has to me has been the generalized abdominal pain without muscular rigidity. If you find localized pain, it is often in the region of the cecum. Here we have the largest number of mesenteric glands. In most cases you do not have generalized abdominal wall rigidity. In children, and most of these cases we are speaking of are in young children, rectal examination even in appendicitis is not particularly satisfactory.

About operation procedure, I am not as free to recommend operation as Dr. Coleman would lead you to believe he is. He has averaged 76 operations out of 86 cases. The reason I have grown more conservative is that I had had a number of abdomens opened and found them negative. I have seen more serious post operative reactions than Dr. Coleman describes in his cases. Many of my cases have had a high post operative temperature. Their faces are flushed, and their joints are sore and aching. Appendicitis does not act that way. I have had no deaths but I have seen some very disagreeable convalescences. After having been ultraconservative, then quite radical, I have again be-

come more conservative. I say this with forethought because I would hate to lead anyone into being too conservative, and then have a fatal result. Knowing that this condition is of short duration, that it does present a fairly clear-cut clinical picture, I feel that one is justified in sitting by for a limited period of time waiting for further evidence of localization, because you know you must get localization before you get general peritonitis in appendicitis.

The difference in Dr. Coleman's and my viewpoint is largely based upon the fact that he is thinking of this condition from the surgical standpoint while I see it as an internist.

Dr. T. A. Lawler, Taylorville: I do not like to go into an abdomen without at least a diagnosis of surgical abdomen, or like Dr. Coleman, I would rather go into the abdomen for adenitis when I thought there was appendicitis there than to let it alone. I am sure that I have done that a number of times. One or two cases at least in which I went in and found no appendicitis reacted better than I expected. I always try to find something else if I do not find a bad appendix, and sure enough I found a very bad nodule not far from the appendix. I removed it with the same result as Dr. Coleman mentioned, though it was quite serious. Just as I was getting ready to come here on Monday evening I was called to see a little patient. I found her with a 20,000 leukocyte count and sore abdomen, also bad tonsils, though no acute infection but bad adenoids. I thought seriously of going in. I left her in the hands of a good man and I know he will be careful. The mother was of the same type and had had several attacks. I operated on her six or eight years ago and her case was so much like the little boy's that when I was called she said, "Here is case No. 2." I rather wanted to take the child to the hospital, but he had a leukocyte count of 20,000 and I felt quite sure that it was an adenitis because I have seen similar cases. I have kept no statistics but there have been quite a few.

Dr. E. P. Coleman, Canton (closing): I believe if we can actually diagnose lymphadenitis there is no justification for operation. I have been watching for these cases, diagnosing it in 60 per cent. and missing it in 40 per cent.

Dr. Lawler asked about the nodule above the appendix present in his case. So many cases of appendicitis do not have mesenteric lymph glands present, it is hard for me to believe that it may be a causative factor. In eight cases where conservatism was recommended and followed, I have been rather criticized by some of my colleagues for neglecting an appendicitis. One patient in whom I thought it was a mesenteric lymphadenitis and recommended conservative treatment died of peritonitis. When I first started out in practice and found cases of appendicitis, very few patients came to the hospital early. You had to convince the family, the relatives and all the adjoining families that operation was necessary, and then by the time the patient got to the hospital peritonitis had developed. When one sees them pass out that way one begins to feel that true conservatism in appendicitis is early operation.

All these patients with simple adenitis recovered. At a medical meeting in Peoria I saw Dr. Collins open up an abdomen and demonstrate the lymph glands. He said he did not know what caused them but they recovered. I have seen some postoperative results, with no more reaction than many laparotomies have had.

I am never sure of my diagnosis in lymphadenitis. One Sunday afternoon I was called to see two patients with an acute abdominal condition, both under twenty. One I was quite sure was appendicitis because there was some rigidity, pain and tenderness localized over McBurney's point. I opened that patient and found a normal appendix, but a lymphadenitis. The second case was a typical mesenteric lymphadenitis. The patient recently had a cold and was not very sick. The leucocyte count was under 8,000. We opened up that patient and found a gangrenous appendix. So I do not believe from my own experience I am justified in delaying in many cases. I believe that delay or conservatism is justifiable where a young child has a little abdominal pain recurring and a recent cold, making the possibility of a postoperative pneumonia to be considered. Those cases should be left alone. There are some cases of appendicitis that should be left alone. If one can be absolutely sure of the diagnosis of lymphadenitis, no operation should be done.

HEALTH INSURANCE AND OTHER PLANS FOR SOLUTION OF MEDICAL ECONOMIC ILLS

R. K. Packard, M. D.

CHICAGO

Health insurance occupies an important role in medical, public and political discussions. The fact that it had its inception fifty years ago and has spread to forty-five countries has some significance. There is little uniformity in the plans adopted in the various countries, and changes are frequent.

Western civilization is accustomed to rapid changes in its political, social and economic problems and the new era of invention and industrialization and rapid economical transportation coupled with the transmission of power has added to the complexity of our problems and the rapidity of our changes. The Western World is composed to a large degree of industrial laborers dependent solely upon income derived from employment and necessarily a very large portion belong to the low income groups, and when employment ceases for a long period of time they become dependent on their relatives, the community or the state. Inasmuch as they also form the nucleus of our purchasing power, and

Read before Secretaries' Conference, Illinois State Medical Society, May 21, 1935.

their purchasing power stops with unemployment any marked increase in unemployment only adds to the unemployment role.

The other large group is composed of farmers and when there is unemployment in industry the market for farm produce drops and purchasing power decreases and depression results. The Western World has passed through such periods before and in each such period there has been an attempt to pass legislation tending to provide social and economic security. Every country passing through such a storm has attempted to legislate social and economic security. Mass rule under democratic forms of government, now nearly universal in the Western World, has made it necessary for the government in power to tie the people to the state or to the political party in power and those governments that have refused or neglected have passed from power and new forms and new parties have ascended. Such is the plight of the Western World today and particularly of the United States.

Health insurance, compulsory or elective with or without unemployment insurance, had its inception under Bismark to tie the laboring classes to the state and I may say as a general statement that a study of health insurance plans in every country will disclose facts that lead one to the assumpttion that they resulted from political expediency rather than as an answer to the problems of furnishing adequate medical care. to the low income group.

The proponents of health insurance in any form under governmental supervision base their arguments largely upon the statement that the laboring classes are not receiving adequate medical care and that they cannot afford adequate medical care because of the low wage they receive from industry and because of the uneven distribution of illness. Those who have made a study of incomes in large industrial centers even in periods of rather steady employment must agree that incomes are not sufficient to provide adequate medical care — especially in severe and prolonged home illness nor in cases that require surgery and hospitalization. Let us not forget, however, that in such instances that the local communities through endowed hospitals and county hospitals are prepared to care for such unusual occurrences, and that the doctors have always given their services free in such cases, so that those proponents who cite extreme cases must be reminded that we already have planned for such care. If in the ordinary run of events industry has not paid sufficient income to provide for medical care and other necessities of our modern civilization, then the problem is a challenge to industry. The argument that even though industry increased wages—the earners would not save a portion for sickness may be a valid argument and if so then industry could well look to a plan where they would establish that saving themselves, and assure a greater responsibility of leadership to their employees.

Adequate medical care can only be rendered at a cost and that cost must be met by the individual or some other method, and in the end industry as a whole has to pay the bill and as we are able to show the bill will be less if kept from governmental supervision.

Let us discuss Health insurance from the following standpoints:

1. *Does it provide a more adequate care?* The first essential to adequate medical care is that physicians must be trained and have time for study. Under health insurance the physician is compelled to see many more patients than he can properly question and examine, and is forced for lack of time to prescribe without complete examinations. No doctor can examine one hundred patients in an afternoon and give adequate medical care. You may pause to ask why does a doctor have to see so many patients and the answer is that the expense of clerical help to file and record the necessary forms are so high that there is little left for the doctor. The personnel outnumbers by far the doctors who actually render the service.

2. *Has sickness decreased?* The record shows that sickness has not decreased, and also shows that where health insurance is accompanied by sickness unemployment insurance that sickness increases because of malingerers.

MORTALITY AND MORBIDITY 1933

	Deaths per 1000	Infant deaths per 1000 births	Diphtheria per 10,000 population	
			Deaths	Cases
United States	10.7	59	3.9	39
Germany	11.2	76	5.6	114
England and Wales	12.3	63	6.3	117
Scotland	...	81	7.2	180
France	15.8	75	12.9*	50
Irish Free State	13.6	65	17.0*	113
Poland	14.2	128	...	52

*1932.

3. *Does Health Insurance retard medical progress?* Medical progress in the United States in the last fifty years has far outdistanced that of any other country and this has been accomplished through the efforts of the American Medical Association, The American College of Surgeons, and The American Hospital Association. The responsibility of improving medical education, improving hospital standards, increasing opportunities for post-graduate work has been assured by the profession and no country has made such rapid strides as the United States. Such advancement must add to the problems of adequate medical care and as a result the people of the United States today as a whole receive better medical care than any other country in the world. Adequate medical care cannot be legislated; it must come from an interested, honest, intelligent and ethical profession, assisted and cooperated with by the public and by the public and industry in particular.

4. *Has the cost increased or decreased?* The cost of medical care has increased in every country where it is practiced, as is evidenced by the fact that the cost for taking care of thirty-five million people in Germany is approximately three times as much as caring for the forty million not under health insurance and this in spite of the fact that 10,000,000 belong to the higher income group where fees would ordinarily be larger.

5. *Has the income of the doctor increased?* We have followed Great Britain in much of our social legislation. The general practitioner in Great Britain was in a sad plight before sickness insurance was established and he still remains in a sad plight. Contract and club practice was in keen competition before the enactment and price cutting had reduced the general practitioner nearly to starvation. Sickness insurance was offered as a solution to this evil, but it has neither corrected the evil, nor added little to the income. The average income in Great Britain of a panel physician is $2,000.00 per year and $1,000.00 of this must be spent in maintaining this practice. If this constitutes an improvement over the old system, it only accentuates the gravity of conditions before the enactment. No such conditions ever existed in the United States. Even the proponents of sickness insurance in Great Britain do not maintain that it has solved the problems of adequate medical care or improved the status of the doctor.

6. *Does the free choice of physician tend to provide a more or less adequate medical care?* It would seem but common intelligence, that patients seeking your services because of choice would stimulate a greater interest and responsibility than those who are directed to you without choice. Perhaps this should not be so, but humanity cannot be reduced to a machine and the pride of individualism will not be denied. Aside from this, one may properly ask whether or not the low income laboring group should be denied the right and privilege of choice and confidence and personal relationship.

We will now proceed to a discussion of other plans designated to improve the rendering of medical care to the low income group.

1. *Group Hospitalization*: For some years the writer has advocated group hospitalization as a means of improving not only medical care, but also as a plan whereby the doctor's income would be increased. The necessity for hospital care has increased with the progress of medicine and hospital costs form a major portion of the expense in large number of cases as illustrated by reports of Wayne County Medical Society that three out of five were hospital cases. In the low income group this puts a burden on the patient, the hospital and the doctor. Group hospitalization removes that burden on the part of the patient and the hospital and allows the doctor some chance of collecting his bill.

Group hospitalization is growing quite rapidly and while not solving all of the problems, it does seem to offer a means of distributing the uneven costs of medical care.

Membership in twelve of the leading group hospitalization plans totals memberships 64,044 and dependents 29,693.

The usual guarantee for hospital service is 21 days and this takes care of 95% of the hospital cases. The average stay in the hospital is about 8.5 days. Experience has taught that there is some difference in the risks taken, the most noteworthy one being that individual subscribers are bad risks and that when only a small proportion of eligible employees enroll the risk mounts because those most likely to need hospitalization are most likely to enroll. Women receive more hospitalization than men, due to maternity care and gynecological cases.

Women dependents entitled to but ⅓ or ¼ discounts require much less service than employed women. Non-dependents having full coverage have received such proportionately large amounts of care as to vitiate the principle of insurance.

Dependents in Group Hospitalization: There are various plans for the care of dependents, some on full coverage and some on discount plan. The cost for full coverage for dependents should be higher because experience has shown that they are more apt to enter the hospital for elective operations.

Group hospitalization plans should be safeguarded by the following:

1. A non-profit organization.
2. Free choice of hospital.
3. Free choice of physician.
4. Board should be composed of medical men, hospital trustees, and the subscribers should be represented.
5. Medical service must not be included.
6. Funds should be invested under some safeguard as insurance or trust companies.

2. *Sickness Bills by installment:* The Wayne County Medical Society has such a plan, which is an experiment in installment payment of medical bills. The client presents his case to the director of the Medical Service Bureau and furnishes the information required regarding income, rent, number of children, insurance, present debts, etc., and a plan is worked out and the employer is consulted and necessary arrangements completed with physician, hospital, etc. All bills are sent to the Bureau and 10% carrying charges goes to the Bureau. Up to January 1, 1935, 1,510 cases had arranged for service, and 719 required hospitalization. During this period $126,570.00 in bills were submitted and $34,125.55 had been collected. In view of the fact that a large percentage require hospitalization the plan does not give much income to the doctors for the hospitals ask that one-half of the hospital bill be paid first. The hospitals are not enthusiastic about the plan for they have no guarantee. Some hospitals demand a down payment of $25.00 or $30.00 before admission and some refuse to take the cases.

The plan, however, is an experiment and the value can only be determined by further experiment. Employment in the motor industry is very spotty and annual earnings average around $800 or $900 per year now. The family life is unstable and moving occurs at frequent intervals.

3. *Other plans:*

Alameda County (California) Plan: Before any plan was adopted, the Alameda County Medical Association undertook a study to determine the best method of providing medical care for the three classes: 1, the indigent; 2, the individual of moderate means, and 3, those who can properly finance their medical care.

Arrangements were made in October, 1932, for a co-operative plan by the medical association and the County Institutions Commission. Members of the medical association agreed to treat nonindigent patients privately for whatever fee they were able to pay, providing their ability to pay could be determined by the County Medical Society Service, and providing any necessary social work could be rendered by medical social workers of the clinics.

Table 1—Distribution of Referrals, for Medical Services Under the Alameda County Plan, made to Physicians in the County in 1933

	No.	Per cent	No.	Per cent
Total referrals			2,077	100.3
To county medical Association			1,898	91.3
To county medical Association	1,898	100		
For part-pay care	1,812	95		
For full-pay care	56	5		
To physicians not on list			158	6.5
To physicians—names not given.			51	2.2

The social service department of the County Institutions Commission is responsible for contributing the following types of assistance to physicians participating in the plan:

(a) Social study.
(b) Medical social case work.
(c) Determination of the patient's ability to pay for medical care.

The physician makes at least one visit and renders the necessary service regardless of the patient's ability to pay any part of his fee. He then fills out a form giving certain social information and sends this to the social service department which notifies the local clinic if a social investigator is requested by the physician.

During 1933, 2,077 referrals to private physicians were made by social workers, clerks, nurses, doctors and others in the Alameda County agencies. These referrals were made to the three groups of physicians listed in table 1: (a) those who were members of the Alameda County Medical Association and had agreed to take patients

at reduced fees, (b) those who were not members of the Alameda County Medical Association and whose names, therefore, were not on the list and (c) referrals made to the secretary of the Alameda County Medical Association with the understanding that the patients could pay a full fee.

The Alameda plan has been much advertised throughout the country; however, a recent interview with a writer who had just visited California and had experience with this plan revealed that it has not added materially to the income of the doctors, and that its chief function had probably been to give employment to the social workers who are necessary in carrying out the plan.

2. San Diego Central Clinic Service: The Central Clinic Service of San Diego originated with a suggestion of the Health Council of the Community Welfare Council. The objective was to provide an organized method of meeting the medical needs of the resident indigent and others whose incomes would permit either a part or full pay service. The Central Clinic Committee is composed of representatives of the county medical society, the Community Welfare Council, the county and city health departments, the advisory board of the county hospital, the health and development department of the city schools, Navy relief and Mercy and San Diego hospitals. An executive secretary and staff operates under the supervision of the board of directors. The principal functions of this executive staff are to conduct a social service investigation to determine resources and fees to be charged and to direct patients to the physician of their choice or, if no choice exists, to a list of physicians in alphabetical order.

Table 2—Number of Patients Referred to Clinic, 1933

Referred by physicians	541	40.7%
Referred by self	218	15.4%
Referred by county	247	18.0%
Referred by Mercy Hospital	87	6.3%
Referred by Dan Diego Hospital	20	1.3%
Referred by school clinic	103	7.6%
Referred by other agencies	133	9.8%

Patients come to the Central Clinic Service from four main sources, the physician, hospital or clinic, or by direct application of the patient himself. By far the most important source is the physician, as is shown in table 2.

One of the important factors in the work of the Central Clinic Service has been to analyze expenditures with heads of families, to make suggestions and to plan monthly allotments, for medical service. It has been gratifying to find that this service is successful and that families have profited by the experience.

"Steering" patients is one of the real jobs of the Central Clinic Service. The 20% of patients sent to physicians at full fee were not all bargain hunters who came to the agency seeking lowered fees. Many of them were persons, who were at a loss how to arrange for adequate care. The explanations of the parts played by diagnostic and treatment service of the laboratories, x-ray departments, specialities of all kinds has been important. Interpretation of the social situation of the patient to the physician undertaking the treatment has been equally important. The plan has received favorable editorial comment in the *San Diego Union,* August 20, 1934.

There have been many private organizations engaged in some form of enterprise to render medical service. Obviously they should be discouraged because they are organized for profit by promotors with little thought of rendering adequate medical care to the individual. The unevenness of unemployment will always remain a problem and whatever the plan adopted may happen to be it loses its effect when unemployment develops, and that is the time of its greatest need.

The care of the indigent therefore remains a very serious problem and accounting Medical Societies must assume their share of responsibility in working out a plan with the Governmental Agencies for such care.

There should be a very strenuous effort made to abolish the old plan of the township or county physician, and have this work taken up by the County Medical Society. By the continued study of plans directly under the control of organized medicine, a solution to many of our problems will be found.

826 East 61st Street.

DISCUSSION

Edwin S. Hamilton (Kankakee): Members of the Conference: I certainly think you must be very much interested in this subject, due to the attention which you have given it this morning. That you are interested is very encouraging to the members of the Com-

mittee on Medical Economics, of which you know I happen to be chairman. I have listened to the men who have presented papers this morning. Most of them are specialists and I think were assigned a subject and talked on anything on which they wanted to talk. I did not see Dr. Packard's paper until about two hours ago and I am not going to try to discuss all of it. He brings up the subject of health insurance. In my opinion, health insurance, up to date, has really offered the public nothing. The only thing in which the public is really interested is security. Certainly from what we have been able to read in regard to foreign countries which have adopted this plan they have no more security, in connection with medical care, than we have in this country. The ones to whom it has been offering security are the politicians and social service workers. If you will view it in this country and in Europe, the politicians and social workers are the ones who are advocating it most of the time.

As a result, the center of medical education has moved from Germany and Austria to the United States. That, in itself, is an answer as to what effect health insurance has in the practice of medicine. Those of you who have read the most excellent article of Gustave Hartz, probably the most outstanding economist of Germany, cannot help but be struck by the fact that he states many of the present economic ills of Germany, not alone medical, but the economic ills of Germany, can be traced directly to the results of socialization plans, and particularly those socialization plans in regard to medicine. He even goes so far as to make the statement that if Germany stayed away from socialization, particularly that of medicine, it would not be in the bad condition in which it finds itself today. Mr. Hartz is not an M. D. He has studied the subject of economics from all angles. For those who have not read the article, I think you would receive it by writing to the Secretary of the State Society at Pittsburgh. It would be worth your time to read it.

The subject of group hospitalization has been discussed. I have heard some quite dissimilar opinions on this subject. I think most of us have a somewhat open mind on the subject with a tendency toward feeling there is enough good in it that it should be tried out. It certainly gives to the general public a feeling of security in the payment of hospital bills, which have become so heavy that they are a constant source of terror to the sick. As a result, they get money enough to pay hospital bills and forget all about the doctor bills. The great danger, as Dr. Packard said, is the including of medical care in this plan of group hospitalization. I don't believe in any place where they have tried to include medical care it has been successful. I was glad to see that Dr. Packard included in his report the tenets laid down by the Medical Economics Committee at the January meeting held here. The committee outlined some basic things that should govern any attempt toward group hospitalization.

Recently seventy hospitals in New York City decided to start a group hospitalization plan. The rest of the United States is going to watch very carefully what happens in New York, because if it can be made successful in New York, there is no question but what it will spread all over the United States in the large centers. The hospitals of Chicago have not as yet been able to get together on this subject.

As far as discussing sickness insurance, I shall not take any of your time. It is purely an experiment. Those of you who attended the meeting at Minneapolis and listened to the different reports of the different states in which it was tried, cannot help but come away with the feeling that none of the doctors are very much sold on the subject. It is an experiment and some good may come out of it, but certainly it has not as yet proven highly successful.

If you will permit me for a second to give a few personal opinions in regard to the whole problem of medical economics on which I have spent a little time in the past two years, I am going to try to answer a few little things that come up. In the first place, I believe the majority of our troubles will be over if and when prosperity returns. While we are going to have to sit tight and make the best of things as they are, we have two or three big problems ahead of us. We have to convince the general public and the politicians we are more interested in the care of the sick than any one thing before the public today. I think too often we have a tendency to forget that and give the impression we are doing this from a selfish viewpoint and interested more in the good of ourselves and the profession than the good of the public. Until we are able to convince both the medical profession and the laity in this connection, we are definitely on the defensive and we cannot afford to be on the defensive. To accomplish these things, we have to have a very open mind. We have to listen to the suggestions offered to us, we have to listen to some of the theories and even have to offer to cooperate with our critics in the trying out of some of their theories. It does not necessarily mean we must be convinced of all of them.

If we will do these things, we will have very little trouble in convincing the public we are not activated by selfish motives, and when that day comes they are going to listen to our suggestions and fall in line with what we have to say.

I want to congratulate Dr. Packard on his paper. I believe almost entirely in what he says. I think he has expressed it much more ably than I would have been able to do. I want to thank all who came here today and patiently listened to these programs. I am somewhat responsible for this program, I believe, because I suggested to some of the officers that we have this type of program and I want to thank the officers of the Secretaries' Conference, particularly, for their co-operation in regard to this great subject of medical economics.

MULTIPLE LIVER ABSCESSES

R. A. Tearnan, M.D.
DECATUR, ILL.

Etiology.—The diagnosis of liver abscess is sometimes a very difficult one to make be they single or multiple, and especially is this so when with all the diagnostic facilities at hand, no cause or portal of entry can be found to account for the infection.

Suppuration of the liver presents itself in two forms, either as multiple abscesses or as a single abscess. In multiple abscesses there may be two, or the whole liver may be one mass of small and large abscesses. This condition is usually secondary to an infection elsewhere in the body, and as a rule is fatal to the patient. Surgical procedure in the multiple type of abscesses, according to many authorities is of little avail while the single abscess lends itself readily to aspiration, emetine and surgical procedures.

Distribution.—It has been repeatedly stated in the literature and in the text-books that single abscesses occur in tropical countries where amebic dysentery is very common. It has been shown however in late years that amebic dysentery is quite common in the colder climates, such as in Greenland, Labrador, Canada, Korea, and our own United States. It has been estimated that one out of every five persons residing in the United States either have the active ameba or the cyst forms in their system. If such is the case it is of prime importance that we know all we can about liver abscess, so that the management and treatment can be started as soon as the diagnosis is made.

Incidence.—Gessner, Herman B.[1] reviewed 96 verified cases of abscess of the liver recorded in the New Orleans Charity Hospital between the years 1918 to 1932 and found that men are more prone to liver abscesses than women, the percentage being 92.8% males and 7.2% females. Murray, Florence J. and Koh, P. K.[2] give somewhat similar figures, also many other authors too numerous to mention.

Causes of Liver Abscesses.—Keefer, Chester S.[3] reviewed 85 cases of multiple liver abscesses due to various causes and summarized them in an attempt to gather more precise information regrading the pathogenesis, the course and complications of hepatic suppuration.

He stated "inasmuch as infection reaches the liver by one of the following routes, the hepatic artery, direct extension from neighboring organs and through the radicles of the portal vein or the bile ducts, the cases were divided into groups according to the modes of infection which are summarized."

1. Thrombosis of radicles of Portal Vein:
   - Appendicitis ..... 16 cases
   - Gall Bladder Infection..... 1 case
   - Splenic Abscess..... 1 case
   - Strangulated Hernia..... 1 case with infected wound.

   19 cases
2. Primary Lesion in Portal Area:
   - No Pylephlebitis..... 22 cases
   - from Appendicitis..... 3
   - Typhoid Fever..... 2
   - Ulcers in Ileum..... 3
   - Carcinoma of Stomach..... 2
   - Amebic Dysentery..... 9
   - Multiple Abscesses..... (5
   - Single Abscess..... (4
   - Rectal Abscess..... 1
   - Bacillary Dysentery..... 1
   - Pancreatitis 1
3. Direct Extension into Liver Substance:
   11 cases
   - from Empyema of Gall Bladder.. 3
   - Perforated Gastric Ulcer..... 1
   - Lobar Pneumonia with Empyema 4
   - Carcinoma of Stomach..... 1
   - Subdiaphragmatic Abscess..... 1
   - Carcinoma of Kidney..... 1
4. Extension through Biliary Passages:
   13 cases
   - from Stones with Cholangitis.... 9
   - Carcinoma of Gall Bladder.... 3
   - Stricture of Bile Duct..... 1

   11 cases
5. Metastatic—Generalized Sepsis:
   - Staphylococcocal Sepsis..... 5
   - Otitis Media..... 3
   - Leukemia 1
   - Tonsillitis 1
   - Cytogenetic Sepsis..... 1

   9 cases
6. Miscellaneous:
   - Actinomycosis 1
   - Tuberculosis 1
   - Hydatid Disease..... 3
   - Streptothrix Infection..... 1
   - Acute Pancreatitis..... 1
   - Cause Undetermined..... 2

Presented before Section on Surgery, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 22, 1935.

I believe the above summary gives one as complete an outline of the causes of liver abscess as one could find, also the percentages of incidence to any particular disease, such as 19 cases of appendicitis as compared to only 1 of pancreatitis as being a cause of liver abscess.

The most common cause for single liver abscess is amebic dysentery.

To the list of causes already enumerated should be added.

1st: Trauma, either from direct injury to the liver substance such as occurs in gun shot and stab wounds, or from a blow upon the external abdominal wall, which may reduce its vitality to such an extent that an abscess may be formed by organisms which invade the liver either by way of the circulation or through the alimentary tract.

2nd: Other unusual causes are

1. Round worms of the genus ascaris lumbricoides.
2. Foreign bodies, such as fish bones, the bacteria entering the liver through the punctured intestine.
3. Inflammation from a perinephritic abscess resulting from the perforation of a gastric or duodenal ulcer with resultant adhesions between the stomach and duodenum may extend directly to the liver.

In order not to make this paper too voluminous we will discuss, the mode of entrance, pathology, symptoms, complications, and treatment of the most common cause of liver abscesses, amebic infections.

Leonard Rodgers[4] suggests that the ameba reaches the liver by way of the portal circulation, that an amebic hepatitis is first produced, in which there is partial thrombosis of the smaller branches of the portal vein together with a reaction on the part of the tissue which keeps the ameba in the walls of the thrombosed vessels. When a number of adjacent veins of the hepatic system have been affected, so that they produce an early liver necrosis the ameba pass from the veins into the tissue and from an abscess. The large abscess develops within a fibrosed wall, and its extension is by the accumulation of material within this membrane without further disturbance of the liver tissue, while the multiple abscesses extend into the liver substance along the veins.

Councilman and LaFleur[5] say that liver abscesses may occur in the above manner but that they believe it more likely that the ameba reach the liver by way of the peritoneal cavity rather than by way of the blood or lymph vessels.

They believe the ameba enters the liver directly from the hepatic flexure, or they may pass from the intestine into the peritoneal cavity and then may wander or be carried like other insoluble material along the upper surface of the liver beneath the diaphragm, and that they may or may not produce peritonitis.

Pathology.—The liver is enlarged, the walls of the abscessed cavity are usually of a dark reddish brown color. The abscess cavity contains pus with detritus or broken down liver cells, red blood cells and crystals. The pus may be of a chocolate watery brown color, or a very thick white creamy type of pus. About 60 to 80% of all single abscesses are located in the right lobe of the liver. The abscesses vary in size from a few centimeters in diameter to large ones containing 3 to 4 thousand C.C. of pus.

The most frequent site for an amebic abscess is in the right posterior border of the right lobe of the liver and the abscess has a tendency to work forward to the diaphragm.

The contents of the abscess are usually sterile although sometimes amebae are found in the scrapings from the abscess wall.

If the abscess is a very large one the right lung may be compressed by the pressure from below the diaphragm, the lung may become inflamed from an extension of the abscess through the diaphragm, and later it may rupture into the lung.

Abscess of the liver may rupture into the peritoneal cavity, hepatic vein, inferior vena cava, bile ducts, pleura, into a bronchus after extension into the lung and may rupture through the skin, giving spontaneous drainage.

Symptoms.—The symptoms of liver abscess are very often masked by the symptoms of a general infection or by some other complicating disease. Usually the first symptoms are those of a generalized infection and it may take anywhere from two weeks to two months, before the symptoms and physical signs point definitely to hepatic abscess.

Usually the first symptoms complained of are loss of appetite, constipation, headache, and sometimes chills, fever and very profuse sweating. They may complain of body soreness, es-

pecially if an attempt is made to move them. The tongue is dry and coated, the skin pale or slightly jaundiced. The symptoms pointing to liver involvement are pain in the shoulder, enlargement of the liver, with tenderness and pain and slight or marked jaundice. In the deeply jaundiced patient he may have a cholangitis associated with an hepatic abscess, and there may or may not be stones in the gall bladder and bile ducts.

Pneumonia may be the first diagnosis made where there is an acute onset with chills and fever, dry hacking cough and pain at the base of the right lung.

The blood examination usually shows a very high leucocyte count ranging between 20,000 to 50,000 with a high percentage of polymorphonuclears in the differential count.

The symptoms of amebic liver abscess, may be only general malaise, with a slight or no rise in temperature, and this condition may go on for a long time before there is any sign pointing to the liver.

There is usually an intermittent fever, simulating that seen in malaria, ranging anywhere from 96 to 105. The highest point of fever usually comes on at a certain definite time of day and I think this point should be stressed.

On the other hand there are many cases on record where the patients never ran a temperature. The temperature of the patient in a well advanced case of hepatic abscess may show no elevation due to lowered resistance.

The pain complained of may be a feeling of fullness or it may be stabbing in character, it is apt to be of the stabbing type if there is an associated pleurisy or an acute inflammation of the surface of the liver.

Pain in the shoulder is quite a common symptom; also coughing is a symptom frequently met with and is due to iritation of the diaphragm or pleura.

Nausea and vomiting are usually associated with abscess or abscesses located in the left lobe of the liver. It also may be due to obstruction of the pylorus due to adhesions between the pylorus and liver.

Persistent insomnia, with depression and melancholy may also be present.

Physical Findings.—The most striking thing from the physical standpoint is the loss of weight which is usually progressive. In a well advanced case of liver abscess palpatation elicits definite tenderness over the liver and very often a markedly tender spot can be made out in the 9th interspace about two inches from the right costal border. Ludlow has emphasized the importance of this tender spot and it is now known as Ludlow's sign, and when present, together with the other physical signs and symptoms, is almost positive proof of the presence of liver abscess.

On percussion the zone of liver dullness is found to extend unusually high. With hepatic abscess in the right lobe of the liver percussion reveals the characteristic dome shaped area of dullness with the highest point in the mid-axillary line.

The discussion of the x-ray and laboratory evidence together with the diagnosis, differential diagnosis, prognosis, and treatment will be discussed in the taking up of Case 1 and Case 2.

Case 1. Mr. E. E. S., aged 49 years, occupation druggist, was first seen in consultation at a neighboring city on January 18, 1932.

He gave the following history:

Family History: Negative.

Past History: Negative, except for usual children's diseases, no history of diarrhea at any time, in fact said he had enjoyed unusually good health up to time of present illness. No venereal diseases.

Habits: Very good, never used alcohol or tobacco. Was a very hard worker, early to work in the morning, and stayed in his store until late in the evening, never took vacations, no recreation of any kind.

Present Illness: Began about November 26, 1932. He had been visiting his son who was a student at Northwestern University, Evanston, and on his return home complained of not feeling well, had no definite symptoms, except some nausea and vomiting and vague abdominal distress which at that time was thought to be nothing more than a gastrointestinal upset. He was at home for a few days when he returned to work feeling perfectly well again. About a week before Christmas he began to feel a dull type of pain in the right side, localized more in the region of the right kidney although it shifted at times to the right upper quadrant. The pain progressed in severity for about a week when it gradually subsided. He was at his store every day for several hours during this spell. About January 11 he began to complain of increasing pain in the costolumbar region, which became more and more severe during the day. His physician was called and he was put to bed and hypnotics administered. Pain gradually subsided in the following week until the pain was described as more of a feeling of tightness and fullness than of pain.

The pain never radiated to the right shoulder nor down the leg nor was there any relationship to the taking of food. He complained of slight nausea but has never vomited since the November attack. Had some chills and fever with sweating previous to January 1,

but none since then. Said the chills and sweating came on between the hours of 12 and 3 a. m.; from November 26 to January 18 had lost about 20 pounds in weight, and was feeling quite weak.

No heart or lung symptoms except an occasional dry cough and rather shallow respirations as though it hurt to breathe. No headache at any time. No urinary symptoms except slight burning on urination 2 weeks ago, lasting 2 or 3 days, no blood or pus noticed at that time; appetite poor, bowels constipated, no clay colored stools at any time.

Physical Examination: Patient had the appearance of one acutely ill. The skin and sclera were clear, no evidence of icterus, the nose and throat were normal, no palpable glands in the neck.

Chest: Heart was of normal size, heart sounds were clear and distinct, no tachycardia or arythmia. Lungs: Left, resonant throughout, no rales, no friction rubs, breath sounds clear and distinct. Right lung showed slight dullness at the base on percussion and on auscultation a few moist rales were heard at the base the rest of the right side of the chest was negative.

Abdomen: Appeared somewhat distended from gas, no evidence of ascites. On palpation and percussion the liver appeared to be normal in size. Kidneys and spleen could not be felt. On pressure over the abdomen there was no localized area of tenderness such as one might find in the region of the gall bladder or appendix. No masses were found on palpatation. There was a distinct area of tenderness in the region of the right kidney both posteriorly and anteriorly with a suggestion of a bulging in this area. Rectal examination was negative, no evidence of hemorrhoids or fissures. Prostate was small and rather firm. Genitals were normal. Both extremities, normal as to joints and muscles, no sign of skin rash, ulcers, or abrasions. Reflexes were all normal. His temperature at 9 p. m. was 102.5; pulse 110 and respiration 22.

Here was a man who appeared dangerously ill who presented very few symptoms, slight dry cough at times, fever, chills, and occasional sweating, and pain in the costolumbar region, with practically a negative physical examination. Except for pain on pressure over the right kidney region and a suggestion of bulging in this area and some signs at the base of the right lung, there was not very much evidence on which to base a correct diagnosis.

The possibilities thought of at the time of this consultation were perinephritic abscess, pyonephrosis, acute cholecystitis with empyema of the gall bladder, subdiaphragmatic abscess, liver abscess, carcinoma involving the liver, malaria, tuberculosis.

We advised his removal to the Decatur Macon County Hospital for further observation, x-rays, and blood examinations. He entered the hospital the next day. His temperature at that time was 101.4, pulse 110, respirations 22. Hot packs of boric acid and alcohol were applied to right side, urinalysis and blood count made which was as follows.

Urinalysis: Color amber, reaction acid, sp. gr. 1020, albumin heavy trace, sugar none, bile none, casts none, rare blood cells, few pus cells, no bacteria found.

Only a white count was taken on day of entrance which was 31,500; the second day in the hospital it was 32,350, the ninth day 57,300 and the eleventh day 74,540.

Blood cultures were taken on the second day, with negative results, no growth obtained.

Wassermann and Kahn tests were negative.

Blood smears showed no malarial parasites. Owing to the pain and soreness in the region of the right kidney, on January 20, the day after admission, an intravenous pyelogram was taken and the x-ray report as given by Dr. Faust was as follows:

Intravenous pyelogram shows the pelvis of the right kidney to be within normal limits as to size and shape. The calyces are also within apparently normal limits, and the function is good. The left kidney pelvis and calyces also appear within normal limits. Neither ureter is seen within its entirety which implies that they are functioning normally.

The bladder is shaped like the average.

Both kidneys appear to be normal.

Radiogram of the upper abdomen on January 21, two days after admission, did not show any suggestive evidence of air under either diaphragm. There is apparently no increase in the size of the liver.

Had air been present we would have had pretty strong evidence that we were dealing with a subphrenic abscess, the result of a perforated gastric or duodenal ulcer. But when air is not present it is sometimes a very difficult matter to distinguish between subphrenic abscess, and liver abscess.

We were trying desperately by this time to find the source of his infection and on January 22 aspiration of the right kidney region, the liver and subdiaphragmatic area was resorted to with absolutely negative results, so far as obtaining pus.

Repeated examination of the stools showed no cysts or active ameba, nor parasites of any other description.

On January 25 he was given a blood transfusion of 500 C. C. of whole blood and felt somewhat improved for a few days, his temperature during this time ranging from 101 to 97 degrees.

The chills, fever and profuse sweating continued with no change in the other symptoms, except that he was coughing constantly. There was increased dullness in the right chest on percussion and moist rales could now be heard over the entire right lung.

February 3 he was given a second transfusion of 500 C. C. of whole blood. His leucocyte count on February 1 was 66,050 and the day after his transfusion it had dropped to 37,950.

There had been no change in his symptoms or physical signs during this time, except increased weakness, cough and loss of weight.

Eollan, R. C.[9] remarked that characteristic symptoms are sometimes mixed with extraordinary ones, for instance in our case pain in the chest, so that the thought of liver abscess is invariably distracted, particularly so in the absence of elevated diaphragm, enlarged liver, and absence of jaundice.

There were definite symptoms and signs of pleurisy with effusion or empyema February 5 verified by x-ray

and aspiration of the right chest was done on that day, 1000 C. C. of a cloudy fluid was obtained. Microscopic examination: No bacilli found. No growth obtained on cultures. Guinea pig inoculation. No t. b. c. found. Two other aspirations were made in the next few days with sterile fluid obtained on all occasions.

On February 10 slight jaundice was noticed with some enlargement of the liver, which rapidly grew in size so that within the next few days it was felt three fingers breadth below the costal margin. Ludwig's sign was present on February 14 and on February 16 the patient was operated on.

A transthoracic incision was made and about three inches of the ninth and tenth ribs resected, the diaphragm was next incised which exposed the liver. When the capsule of the liver was incised a white thick creamy pus exuded together with necrotic liver tissue and detritus. The report on this material was that it was sterile. The abscess cavity was packed and wound drained. He was much improved for about ten days following this operation, and then his symptoms became much worse, nausea and vomiting, increased distention of abdomen, ascites, profound prostration. Death occured March 8, 1932.

Autopsy Report: External appearance. Greatly emaciated. There is moderate edema of the tissues of the lower half of the back and chest. The abdomen is moderately distended and soft. *Chest.* (Rt. pleural cavity only). The right lung is adherent over its entire surface to the pleura. The lower lobe is partially consolidated. The other lobes are normal. There is a localized area of empyema around the lower lobe posteriorily, containing about one-fourth pint of purulent material. There are adhesions to the diaphragm at this place, but no perforation of the diaphragm. *Abdomen.* The abdomen is filled with clear bile stained fluid. The stomach is distended to about three times its normal size. The duodenum is bound down by fibrinous adhesions to the liver and posterior peritoneum. The peritoneum is slightly inflamed over its lower third. The liver weighs 1625 grams. Both external and cut surfaces show numerous abscesses from about 1 mm. to 5 cm. in diameter. Some of these are ruptured and empty; most of them contain purulent material. One of the larger abscesses cavities communicates with a right lateral surgical incision which has almost completely healed. The G. B. is bound down by fibrinous adhesions and contains purulent material. Its wall is edematous and reddened. The spleen is enlarged to about twice its normal size and covered with fibrin. It is moderately firm. The cut surface is normal in appearance. The pancreas is approximately normal size, slightly edematous and very hard. Appendix normal.

Comment.—Multiple liver abscesses, coexisting with cirrhosis of the liver, a complicating empyema, and pyloric obstruction caused this patient's death.

Appendicitis, gall bladder disease, perforated gastric or duodenal ulcer, were ruled out early as a cause of the liver abscess. Not only the history and physical finding, but the x-ray and laboratory tests ruled out any of these organs as the primary focus of infection.

The presence of pus in the gall bladder, hepatic and cystic ducts found at autopsy was of the same character as that found in the abscesses in the liver, and we believe that it was an extension from a liver abscess along the bile ducts to the gall bladder, rather than a primary focus in the gall bladder. We believe this because of the character of the pus which was of a very thick creamy consistency and which was found to be sterile, not only at the time of operation, but also at autopsy.

While a cause could not be found to account for the multiple liver abscesses, we feel that the weight of evidence is more in favor of amebic rather than some other type of infection.

Case 2. The second patient presented definite symptoms, physical findings and roentograms, making the diagnosis comparatively easy, although the cause of his multiple liver abscesses could not be definitely determined.

History: Mr. A. G. aged 67 years, farmer, was first seen at the Decatur & Macon County Hospital, Decatur, Illinois, on December 7, 1933. F. H. negative. *Past History.* Said he had always been well in the past, except for an attack of diarrhea in October, 1933, which lasted about a week. *Present History.* He gave a history of not feeling well for past month and a half. Had lost about 25 pounds in weight during this time. Had severe chills and fever, and very profuse sweating in the past two weeks. Appetite was very poor, bowels constipated. When seen by us was complaining of very severe pain in the region of the liver and right shoulder. His temperature was of the intermittent type ranging from 104.6 to 97. Pulse 80 to 130 and respirations from 22 to 30.

Physical Examination: Skin and sclera were slightly jaundiced, tongue dry and heavily coated, nose and throat negative. No palpable glands in neck. Heart: Some enlargement but otherwise essentially negative. Lungs negative. Abdomen: Liver palpable about 2 fingers breadth below costal margin. Very tender to pressure. Abdomen otherwise negative. The rest of the physical examination negative as to genitourinary system, extremities, reflexes, etc. The blood count on day of admittance to hospital was 4,100,000 R. B. C. 26,800 W. B. C. The hemoglobin was 80%. Urinalysis negative except for heavy trace albumin. Blood Wassermann and Kahn tests negative. Stool examinations for parasites, ameba and cysts, none found. X-ray of the chest showed a slightly enlarged heart and a bronchitis most pronounced on the right side. The diaphragm appeared to be normal.

On account of the long duration of the fever, typhoid fever, tuberculosis, and syphilis had to be ruled out.

In addition pyelitis, hepatic intermittent fever of

Charcot, neoplasm, septic endocarditis, liver abscess and certain types of malaria also had to be excluded. By means of the x-ray, laboratory tests and physical examination all of these were excluded, except Charcot's fever, neoplasm and liver abscess. The diagnosis of liver abscess could be made with almost positive certainty on December 15 when an x-ray examination revealed a marked elevation of the right diaphragm when compared to the left. There was actually about a three inch elevation. This evidence together with the symptoms, physical findings and high leucocyte count made the diagnosis comparatively simple, and especially so in view of our experience with the other patient.

This patient was operated on December 16, a transthoracic incision being made, and resection of portions of the 9th and 10th ribs. Pus of the same thick creamy type as found in the first patient was drained from a large liver abscess, also drainage of the subdiaphragmatic abscess. The pus obtained was found to be sterile.

Patient died the following day and at autopsy the entire liver was found to be studded with many small and large abscesses, besides a large subdiaphragmatic abscess. The other organs were searched for gross pathology and none found aside from some congestion in right lung.

The same comment holds for this patient as in the first one.

We believe the etiology in both of these cases to be amebic, although as I stated before we have no definite proof for this assertion, therefore they will have to be classified as idiopathetic multiple liver abscesses.

CONCLUSION

When the etiology is obscure long continued fever, with chills, profuse sweating, extreme loss of weight, prostration, pain or sense of fullness in the liver region, elevation of leaf of the diaphragm, pain radiating to the right shoulder, together with a high leucocyte count should make one suspect the presence of liver abscess.

The mortality rate is high—20 to 80%. The 20% group are the patients with single liver abscess, while the 80% or better include those patients with multiple hepatic abscesses. Multiple liver abscesses are usually fatal. Surgical procedures should be attempted but they are apt to be of little or no avail.

Treatment for amebic liver abscess of the solitary type should be by aspiration, and filling of the abscess cavity with 1:1000 solution emetine 10 to 20 C.C. This method in Rogers' 111 cases yielded a mortality of only 14% while with open drainage his mortality rate was 56.8%.

According to Hargrove open operation should be employed.

1. In all abscesses of the left lobe.
2. Whenever the abscess bulges anteriorly.
3. When after aspiration pyogenic organisms have been found in the pus.

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DISCUSSION

Dr. J. R. Buchbinder, Chicago: Dr. Tearnan has emphasized very well the diagnostic and therapeutic difficulties in the treatment of this disease. I want to make merely a few comments relative to treatment.

We know, of course, that multiple abscesses, the result of suppurative appendicitis or cholangiitis or as a part of the clinical picture of pyemia, while they make interesting clinical pictures are of relatively little interest to the surgeon, because there is really no opportunity to do anything for these patients. In other words, pyogenic liver abscess is usually multiple whether it arises through the portal system or the blood vascular system, and is a very virulent infection. The outstanding characteristics of amebic abscess are first of all its latency because it is often found at autopsy with no clinical picture to suggest its presence. I believe the percentage of incidence of abscess as far as location is concerned is higher in the right lobe of the liver in comparison to the left than Dr. Tearnan gives. Most men writing from experience in the Tropics give the percentage as 85% in the right lobe and 15% in the left lobe, which is fortunate so far as the possibilities of surgical approach and treatment are concerned.

Amebic abscess is more commonly single than multiple. It nearly always rises deep in the substance of the liver. Two characteristics should be emphasized first, in the beginning it is latent, and second, its tendency ultimately to rupture. There are some men who

have had experience with the treatment of amebiasis who feel that these abscesses should be treated as long as possible medically before surgical interference is thought of. As far as surgery is concerned, men writing from experience in the Tropics have a tendency to make the treatment a minor surgical procedure, to aspirate. First of all, I believe as many men do that the use of the aspirating needle in the abdomen, particularly around the costophrenic angle is a very dangerous procedure, because one can do more harm with a needle than with a knife and because if you are unfortunate enough to find the abscess with a needle or if one should transfix the lower portion of the diaphragm through the peritoneum, a spilling of pus along the side of the needle will occur. So when we open an abscess it should be through the abdomen with the peritoneum properly protected. When the location of the abscess is sufficiently clear, for instance in the right lobe, and it is obvious that it is pointing posteriorly, or at least we are certain that the posterior approach can be made with a fair degree of likelihood of reaching the abscess, it seems to me that the most logical approach is the one suggested by Ochsner some years ago for the drainage of subphrenic abscess; that is the resection of the twelfth rib, pushing pleura up, locating the abscess and getting free drainage exraperitoneally. Where we have to really look for the abscess, where we are not sure there is one, another method that compares in ease of attack and examination of the liver is that of the anterior approach to the anterior abdominal wall. If we have to drain the abscess anteriorly as we sometimes do when the abscess is on the free surface of the liver and is pointing in that direction, we can pack off the liver with gauze, put in a needle and if we locate the abscess we can, as I have had occasion to do twice in the last year in two patients in the Cook County Hospital, protect the peritoneum up to the liver and then get free drainage. It should be emphasized, of course, that seldom can we make a diagnosis of the etiology of the abscess from the pus itself. The ameba tends to lose its morphology in the pus itself, and only by examining scrapings from the abscess wall can we find the organism.

I think the things to emphasize are, that we should not use a needle blindly through the abdominal wall or chest, that we should get drainage posteriorly when possible, that we should avoid contamination of the peritoneum, that we should be sure we are not overlooking an abscess, which happens to all of us if we see enough liver abscesses.

Dr. R. A. Tearnan, Decatur (closing): I agree with Dr. Buchbinder in the idea of not aspirating patients with multiple liver abscesses. The difficulty, of course, comes in the fact that you do not always know whether you are dealing with multiple abscesses or with a solitary abscess. As Rogers said, in his 111 cases he has had a very low mortality rate by aspiration and injection of emetin. That is all well and good for the solitary types which are due to amebic infection, but where you have multiple abscesses that type of treatment would not do at all. You cannot possibly reach all of the abscesses where the whole liver is involved. As stated in the paper, in multiple liver abscesses there is not much that we can do. We can find them and try to pack them off. So far as curing your patient with certainty it is almost impossible. In these two cases that we had the liver was just one mass of abscesses. The abscesses were formed into a mass almost like a carbuncle. They were not only in the right lobe but also in the left lobe, so that I feel that when present as multiple liver abscesses they are practically always fatal, as stated by other authorities. In single abscess, if you are certain that you are dealing with a single one, I believe that Rogers' method is the best form of treatment, that is, aspiration and filling the abscess cavity with emetin. One may have to do two, three or four aspirations, and as the majority of Rogers' cases have been cured by this method of treatment, it should be the method of choice where one is dealing with solitary abscess of amebic origin. The multiple type of liver abscesses should be drained and packed, and single liver abscess should have the same treatment if the amebae is not the cause of the abscess or abscesses.

THE HYGIENE OF READING

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The hygiene of reading is concerned with whatever promotes comfortable, efficient and healthful reading. Reading difficulties may vary from "eyestrain" at reading efforts to complete reading disability. This vast subject has engaged the combined attention of ophthalmologists, neurologists, and educational psychologists. In the present analysis I have but attempted to outline the scope of the problem and to indicate the present orientation as developed from the most authoritative investigations.

Reading is but a phase of visual discrimination, and as such ocular, physical and psychical factors are simultaneously involved. Their spheres are more or less interrelated. As an instance:—A third grade boy was suspected of being feeble-minded because of poor reading ability. Though his vision was apparently normal the boy claimed that the letters looked as if someone had just put a wet blotter on them. After refraction and the proper correction, rapid progress followed. Had the defective vision been neglected, a psychic reading disability would have developed for which glasses alone would no longer have been adequate.

Read before the Joint Session at the Annual Meeting of the Illinois State Medical Society, at Rockford, May 23, 1935.

Ocular Factors

Under favorable conditions the eyes are not easily fatigued; but under unfavorable conditions in which there are difficulties with fixation, accommodation, adaptation, or interpretation, eyestrain is experienced (Lancaster[1]). In the effort to improve perception the eye instrument continuously attempts slight changes in adjustment; the muscles become tense, hyperemia and consequent hyperirritability result (Lebensohn[2]), and fatigue follows. Over short periods of time however the eye adjusts itself surprisingly well to poor conditions; the reading rate, for example, when printed matter is vibrating is practically the same as when stationary (Luckiesh and Moss[3]).

Errors of refraction or of muscle balance should obviously be investigated, and if significant, corrected. Nevertheless, any condition causing hyperemia of the eye such as the commonly occurring low grade conjunctivitis will induce similar discomfort; so one must not be misled into the error so frequently made by optometrists of treating such cases with negligible corrections, tinted lenses, or useless muscular exercises. Even though—as a consequence of such therapy—there are many who could "throw away their glasses," the greater part of the population errs grievously in the opposite direction.

In a recent study by the U. S. Public Health Service,[4] nearly 2000 unselected school children, ranging in age from 6 to 16 years, were carefully examined. Without cycloplegic, two-thirds of the group had normal vision; but under cycloplegic 43% tested as low as 20/50 or worse. Neher[5] reports that in 17 companies employing 83,825 persons less than 10% were wearing glasses, while 49% had defective vision. Among employes doing fine work, an increase of efficiency —averaging 20% followed the correction of refractive errors (Jacoby[6]).

Poor readers tend to show a limited peripheral field, exophoria for near, and decreased fusion amplitude. Though Eames[7] found that improvement of reading ability followed treatment of these conditions, it seems to me more probable that these functional defects are secondary to poor reading habits. Not infrequently also young pupils, in difficulty with their studies, find refuge in hysterical amblyopia (Robinson[8]).

However, the desirability of regular eye examinations for school children cannot be too strongly emphasized; and I suggest that they be made just prior to the summer or Christmas vacations so that the necessary use of a cycloplegic would not interfere with the class work. A clear perception of detail is most important in learning to read. Children report that they know "pig" by the dot over the i; "box" by the funny cross; "window" by the two ends being alike; "monkey" by its tail at the end, etc.

Outside of factors bearing directly on the visual process, mental receptivity is favored by a natural position when reading, a comfortable temperature, adequate ventilation, and the absence of distracting influences.

Physical Factors

For visibility there are four objective requirements:—light, size, contrast, and exposure period. It is noteworthy that above the liminal values, a deficiency in one component may be compensated by an increase in the value of one or more of the other factors (Lebensohn[9]). This accounts for the remarkable influence of ample illumination, which however is not sufficiently appreciated.

Illumination.—Starting from darkness, as the illumination becomes more intense, the visual acuity rapidly increases, reaching a practical optimum at 30 foot candles. Nevertheless such an amount of light is seldom utilized. Much reading is done with but 2 foot candles. To read easily diamond type at twenty inches requires 5 foot candles, which is the minimum advisable. The Illuminating Engineers Society recommends 10 to 20 foot candles for reading ordinary type, and 20 to 50 foot candles for the prolonged reading of fine type. Daylight quality is desirable. The fear of artificial light is common, but entirely unwarranted. Illumination in summer shade, though about 1000 foot candles, is easily tolerated. Pundit Pitkin, who holds that "Life Begins at Forty" weakens our confidence in his sapience, when we find in one of his books[10] an absurd discussion on the thesis that "Most of us who work in large city offices are in constant danger of overbright lights."

Light is seldom annoying on account of quantity, but often because of glare, due to its improper distribution in relation to the reader. Glare results when the eye perceives in the field of vision not only the print but also the source of light, either directly—as when one reads facing a window—or reflected, as from glossy pa-

per. To avoid glare, the principal source of light (for right-handed individuals) should preferably be behind and to the left; and local lighting should be supplemented by diffuse general illumination. Student eye shades are of value, and should be more generally used.

The recent perfection of the photoelectric relay and the illumination meter has made possible for light control what the thermostat and the thermometer have done for heat control. By this means the light in classrooms can be automatically adjusted to the minimum of illumination for which the relay is set.

Size. For the average adult the rate of reading is not greatly affected by change in type size between six and eighteen point, but the use of small type promotes rapid fatigue. Blackhurst[11] found 24 point type the optimum size for the first and second grades, 18 point for the third and fourth grades. College students read fastest and most accurately type of 10 point (1.5 mm.), and this is the standard size decreed for advanced textbooks in Russia and Germany.

Legibility varies with the style of type. Handwritten and typewritten materials are less legible than material printed in plain type. Because of the nature of the eye-movements in reading, too long or too short lines are equally fatiguing. The best length of line for 10 point type is 80 mm. (3½ inches) or about 16 words; and for this size of type the space between the lines should be 1.5 to 2 mm.

Contrast. Maximum contrast is desirable. Knitting white on white requires a greater visual acuity than knitting in contrasting colors. Books should be printed with a good quality of black ink on white or light yellow matt paper, thick enough to obscure the print on the opposite side of the page. Since soiled pages are hard to read, care should be taken to keep the sheets scrupulously clean.

Exposure period. The more favorable the visual conditions are, the faster is the speed of seeing. Bruecke found that the visual reaction time decreased in arithmetical progression as the intensity of the illumination increased in geometrical progression.

PSYCHIC FACTORS

The reading process. Eye-movements are as essential to reading as hand-movements to writing. A record of eye-movements reflects accurately the psychic processes involved in an individual's reading. A French ophthalmologist, Javal, in 1878 discovered that the motion of the eyes during reading is not continuous, but a series of movements and pauses. After a brief pause near the end of a line, the eyes shift rapidly to the beginning of the next line of letters. Because this last pause in a line is of somewhat shorter duration than average, proof-readers are more apt to overlook mistakes near the end of a line than elsewhere.

These eye movements may be observed directly through a hole in a sheet of reading matter, to the right of the reader, or—after prolonged gazing at a small wedge of bright red paper,—they may be subjectively noted through the appearance of after-images at the pauses. By focusing a beam of light on the cornea, a photographic record on motion picture film can be secured. This method, introduced by Dodge, has been recently developed and intensively investigated by the Department of Education at the University of Chicago.* The eye in reading only sees effectively when it stops. Consequently 95% of reading time is spent in fixation pauses. The interfixation movements are from two to seven degrees and consume about 0.03 second; the pauses vary from one-fifth to one-half second.

Change in the size of type causes no appreciable change in the character of one's eye movements. The span of an eye-movement is based, not on so many millimeters of space, but on the number of units that can be perceived, recognized, and remembered (Buswell[12]). The tachistoscope reveals that the mind can grasp at a glance three letters, four numbers, and as many words when aranged in meaningful order. Words can be read, even when the component letters are so small, that they could not be individually recognized.

Characteristics of good reading. Good reading is marked by recognition of large thought units, quickly and precisely; which on the eye-movement record corresponds to large fixation fields, short fixation pauses, and regular onward rhythm. Increasing the difficulty of a selection increases the number of fixation pauses and their

*The importance of this diagnostic procedure cannot be overemphasized, since through its use the particular basis of the reading deficiency may be ascertained. The ophthalmograph (a portable binocular eye movement camera) has been designed especially for these studies, and is adapted for both office and institutional use.

duration, and may introduce regressive movements. The eye does not move any faster than the mind, and when at any point in the reading the eye finds its perceptual span larger than the span of recognition, the eye moves backward to adjust itself to a smaller field. (Gray[13]).

By the time a pupil of normal ability has reached the fourth grade he should have developed fairly efficient reading habits. The analysis should show an average of seven fixations per line, an average fixation pause of 0.27 second and but occasional regressive movements. The reading will have improved in the high school period to five or six fixations per line, an average fixation pause of 0.22 second, and exhibit almost no regressive movements.

Intelligent adults, reading newspapers silently at their ordinary speed, will vary in rate from three to ten words per second. Paradoxical though it seems the fastest readers of a text are generally the best in its comprehension. Lacking the minor confusions incident to inadequacy in the mechanics of reading, their mind devotes itself wholly to the content. Tests among college students show that the fast readers are able to reproduce 37% more than the slow readers (Stockrahm[14]).

How to read rapidly. With training both the span of perception and of recognition can be developed so that individuals will read in large eye-fulls rather than in small ones.** Oral reading is much less efficient than silent reading both in speed and comprehension. Even lip-movements are undesirable and should be eliminated. Since children begin to read newspapers and magazines as early as the third and fourth grades the home should provide for them two or three of the better juvenile publications (Gray[15]).

Pathological Considerations

Reading while convalescing should be limited. As the whole body is below normal, the eyes as well as the body become easily fatigued.

Improvements in seeing conditions, though of advantage to the normal individual, give relatively greater assistance to the visually handicapped. Increasing the illumination from three to twelve foot candles benefits the vision of normal seeing eyes 14%, but of subnormal seeing eyes 22%; and at the same time there is lessened fatigue and an increased tolerance of refractive and muscular errors (Luckiesh and Moss[16]).

Myopia. Though myopia is not necessarily associated with overuse of the eyes, nevertheless protracted and intense near work in the adolescent period appears to favor its progress. In an investigation of apprentices in the printing industry, Duke-Elder[17] concluded that the work of compositors, which exacts the greatest degree of eye-strain, definitely encouraged the development and progress of myopia.

Semi-sight. Children with visual acuity between 20/200 and 20/70 requires special educational attention. In the sight-saving classes designed for this group, the books are in 24 point type, and reading exercises are limited to periods of ten to twenty minutes. One in 500 children belong in this caste, generally because of one of the following disorders: extreme degrees of myopia, hypermetropia, or astigmatism; corneal opacities, congenital cataract, chorioretinitis, albinism, nystagmus, or interstitial keratitis.

Age. The refraction in an aged individual must be periodically checked to compensate for the changes in the crystalline lens that may make for hyperopia, myopia, or astigmatism. Old eyes have additional impairments due to lessened transparency of the media, diminished focusing power, and a decreasing discriminatory efficiency of the retina. High intensities of light are an absolute necessity. It requires 27 foot-candles for a person at 63 to attain the same acuity that young eyes have with 2.5 foot-candles (Ferree, Rand, and Lewis[18]). Moreover, with an increase of illumination the range over which a presbyope can see with a given lens is considerably extended. A change of intensity from one to 25 foot candles may add as much as four diopters to the near point (Ferree and Rand[19]).

Psychic reading disability. Poor reading is very prevalent, affecting to a more or less extent one-eighth of the general population. (Monroe). Among school children the severe cases of reading disability number two to four per cent, dependent on the methods of teaching. The tendency is often hereditary.

The commonest cause of school failure is poor reading ability. It is frequently misinterpreted as laziness, apathy, or mental deficiency. Poor

**The average child in school has been given insufficient assistance in developing fast and accurate reading habits, and the recognition of this need inspired the development of the metronoscope, a training apparatus, which is adaptable to the various degrees of reading ability. The exercise with this instrument is of additional value in that it eliminates some of the close work in the young child's daily program.

readers are customarily discovered in the third or fourth grades when their inadequacy interferes with progress in other subjects. If their shortcomings are not then properly diagnosed and remedied, these children are doomed to educational failure and ultimate social maladjustment.

The older neurologists theorized of a "congenital word-blindness," and surmised for this group a developmental failure in the left angular gyrus. Modern psychologists doubt whether such a diagnosis is ever justified, and hold that all reading disabilities are to be explained on a purely functional basis.

Children with defective intelligence—having an I. Q. less than 70—cannot be expected to read with understanding. Other impediments are encountered with those whose meaning vocabulary has not been developed, or whose recognition and perceptual spans are limited. Most interesting however is the class suffering from confusion of ocular dominance. A large proportion of this group, 17%, are left-handed; and 26% though right-handed are left eyed (Dearborn[20]). The right-handed viewpoint has never been thoroughly assimilated. These children tend to read backwards, and so confuse such letters and words as p-q; b-d; u-n; w-m; was-saw; not-ton; dog-god; etc. Though unable to read, they may be quite intelligent in other fields, as mathematics or mechanics.

For the training of alexia cases special exercises have been developed. Among the most valuable is the tracing of words as they are read aloud, thereby associating kinesthetic, auditory, and visual imagery. Whereas, to the earlier students the prognosis was most discouraging, the present day workers feel highly optimistic concerning remedial treatment.

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THE ALLERGIC INFANT

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The object of this paper is to consider the allergic conditions involving the infant up to two years of age. While the medical literature becomes more voluminous with articles on allergy, little attention has been paid to the problems of this age group. Unquestionably the treatment of allergy is not a panacea for all ills, but it does have a definite place in medicine and especially in pediatrics, for most authorities agree that results with children are much more favorable than with adults.

I'll agree that some of the following paragraphs may be somewhat elementary to the trained pediatrician and allergist, but in this field of allergy I doubt if we can as yet be too elementary. During recent years, I am sure that my added training in this field has made my problems easier and my results increasingly better. Perhaps we all must become a little more allergic-minded in regard to the infant. How often are we confronted with the asthmatic child, the youngster with hay fever, or the infant with hives, in whose case, if we search back in our minds or in clinical records of its infant feeding

Read before Section on Pediatrics, Eighty-fifth Annual Meeting, Rockford, May 21, 1935.

days, we will find the story of breast or bottle fed colic followed with mild or severe eczema associated with frequent attacks of head colds, croup and even bronchitis. In the past, perhaps we have all called these conditions underfeeding, overfeeding, catarrh and even pneumonia, but today we must consider some of them as different phases of allergy.

Heredity is probably the underlying cause for this entire group of diseases. Most investigators agree that in sixty per cent of cases the histories show one or more cases in other members of the family. Furthermore, it has been shown that where both parents are allergic, the offspring have about twice as much chance of suffering as when only one parent is affected; and where neither parent is a victim, the children are not likely to develop one of these diseases. It also has been demonstrated that the greater the hereditary influence, the earlier the symptoms of allergy occur in the offspring. Also, the children do not necessarily inherit the same disease; e.g. the parent may have hay fever, but the infant asthma.

The infantile gastrointestinal malady, so long known as colic, still seems to receive its share of combat in pediatric literature. The term may be a misnomer, but the malady, so distressing to both the mother and the physician, still continues to occupy an important place in the signs and symptoms of a crying infant. This condition has been variously diagnosed as underfeeding, gastroenteritis, indigestion, constipation, or what have you. When the mother, perhaps on the advice of a friendly neighbor, changes the type of feeding, it sometimes happens that the baby quiets down and soon begins to thrive. This seems to be miraculous, but such results are not surprising since the disturbance in a large percentage of these cases is undoubtedly due to a sensitivity to food.

For infants, the most common allergens giving reactions are egg, wheat and milk. In the case of milk Coca[1] states, "There is no convincing evidence, published or in our experience, that hypersensitiveness to milk is ever exhibited to the casein fraction." Furthermore Bowman and Walzer[2] say, "The caseins of most animal milks are practically alike, but the fact that sensitivity to casein is unusual, if in fact it exists at all, allows a successful substitution of some other animal milk for the one which the patient cannot tolerate." Goat's milk is, therefore, a valuable substitute at times.

The other protein fraction of all milks is lactalbumin whose allergenic powers are greatly altered by prolonged heating. Sensitivity to this alone may be almost immediately relieved by the use of the heated milks, such as evaporated milk, various dry milks, and hypo-allergic milks on the market. Prolonged boiling or autoclaving of cows' milk very often answers the problem; however, we have all seen the occasional patient who is so sensitive to milk that the mere ingestion of a few drops sets up a huge allergic reaction evidenced by fever, vomiting, gaseous distention of the abdomen, and generalized edema of the body. This infant must immediately be changed to a complete milk free diet. Such milk substitutes as Sobee, Almanlac, and Cemac may be used but these have not in my experience proved very satisfactory. Fortunately, milk sensitivity is almost always outgrown. After a few months of freedom, milk can usually be resumed.

Many investigators agree now that it is quite possible for the mother to sensitize the child during uterine life and during the lactating period. Egg and wheat proteins are the usual allergens in a mother's diet that cause gastro-intestinal disturbances or other allergic conditions in the infant, and the removal of these from her diet has repeatedly brought relief to the child. The same result is obtained by the elimination of wheat bran from the diet of the herd of cattle whose milk is being used for feeding the infant. I refrain from adding eggs to the milk diet, as was commonly done a few years ago, because I have so often seen children who have eaten eggs, or even played with egg shells, become acutely ill with vomiting, fever and giant hives.

Other important foods in the infant diet that may be responsible for so-called "allergic colic" are orange juice, tomato juice, cod liver oil, barley so often found in infant soups, tomatoes, carrots and other vegetables commonly added to the diet of a child around four to six months of age.

In the case of "allergic colic" two factors must be kept in mind. An accurate diagnosis and secondly the careful elimination of the foods causing the trouble. The avoidance of these poisonous foods in the young infant certainly will tend to stabilize its allergic balance and consequently reduce the incidence of other al-

lergic manifestations which so often develop in later life.

The second most common and important allergic disease encountered in infancy is eczema, a term applied to a characteristic skin rash usually beginning at two to three months of age and evidenced by an erythematous eruption on the cheeks. This soon becomes vesiculating and oozing and often spreads to the cubital spaces of the arms and the popliteal spaces of the legs and to other parts of the body. The appearance of these lesions may vary, but usually there is present the itching so characteristic of allergic dermatoses. Care must be taken not to confuse allergic eczema with other dermatological lesions present in infancy. As in "allergic colic," the ingested food proteins play the important role in the etiology of this disease, and among them milk, wheat and eggs predominate.

In the literature of today there is no other article so helpful in the management of infantile eczema as that of Louis Webb Hill's[3] in the *Journal of Pediatrics* of March, 1935. His classification is most practical and it, with his discussion, will help one to solve the ever increasing problems involved in the treatment of this disease.

In my experience I have found that skin testing is of little value on the infant under nine months of age because its skin is quite often so sensitive that even control tests mean nothing. With the older child the results are more satisfactory. In making the tests, I prefer the forearms to other surfaces of the body. It is true that less number of tests can be made at one sitting, but the reactions can be more reliably interpreted and the child will accept the ordeal of testing in a much more friendly state of mind if it can watch what is being done.

Intradermal testing with some of the more important allergens can be safely done provided previous scratch tests are negative. We have found that the passive transfer method, better known as "local passive transfer," even with its fallacies, is quite valuable in many cases, especially with those whose skins present many difficulties. Surely every puzzling case should receive a trial of this method. Oftentimes positive reactions so elicited are a great help in arranging elimination diets, which I feel are the most powerful weapons we have at our command to combat the dietary phase of infantile eczema.

It has long been thought that wool clothing and blankets, if not the whole cause, are at least irritating to an already developed eczema. Today, however, it is thought that the external allergens, such as silk, orris root, dust, animal danders, are, perhaps, secondary factors also, both as inhalants and contacts. Therefore, I feel that every infant with allergic eczema should have rubber covered pillows and mattresses.

Hypodermic desensitization, as a routine treatment for infants under two years of age, with some of these external or food allergens is hardly feasible. Oral desensitization with foods is possible and not dangerous, but is more valuable in the older age group of children than in the younger. Hansen's[4] results with the feeding of linseed oil and other investigators' results with corn and olive oil are very encouraging. I have had no experience with these methods so far. I feel that this warning should be given, however. Is the infant sensitive to corn on flaxseed? If not, will this method of management tend to sensitize it to these cereals? In topical treatment, coal tar is perhaps the most valuable medicant at our command.

Bronchial asthma, another important allergic disease encountered in infants under two years of age, is much less common than other diseases, but it is of much more serious consequence. The earlier the asthma, the earlier will serious chest complications make their appearance with resultant bony and chest deformities. In the early history of the child the chief complaint is often frequent chest colds which follow upper respiratory infections. These are accompanied by fever, dyspnea, cough, and at times, lung findings similar to those of pneumonia. Between attacks, these infants are usually free from symptoms, but as one spell follows another the two main complications set in; namely, emphysema and chronic bronchitis. These two tend to change the picture. The periods of complete freedom between attacks vanish, and instead we find that the patient is short of breath on exertion and coughs more frequently than before. Now the prospects for complete relief of symptoms become less bright, and the chronic asthmatic of later life seems inevitable; and this will be the case unless a rigid regime of treatment is closely followed over a long period of time. Pollen asthma is also possible in this infant group. I personally have treated with excellent results an

infant fourteen months of age who had seasonal ragweed asthma.

The treatment of the early infantile asthmatic is very satisfactory if it is based upon the causative or exciting factors of the disease.

There are many other allergic manifestations in infants, which are important. Conjunctivitis may be caused by sensitivity to soap; to medicants, such as neosilvol; to dusts, to pollens, and to animal emanations. The chronic running nose or the frequent head cold of the infant may be due to the cod liver oil in the diet, to the cosmetics used by members of the household, or to the pollen of plants. Other causes are the dusty feather pillow, the pet dog, the rabbit-hair toy, the teddy bear, and numerous other unexpected things. What part tobacco smoke in the home has to play as an irritant of the infant's very sensitive mucous membrane surface, I am not prepared to say. Unquestionably, however, this should be kept in mind as a possible factor.

Seasonal hay fever in the infant is rare, but perhaps may be more common than we realize. The future with its more accurate means of diagnosis, will, no doubt, add more light to this subject.

Bacterial allergy, if there is such, needs much thought and study by the pediatrician as well as by the allergist and otolaryngologist. Surely, some head colds are purely bacterial in etiology. What part then will respiratory vaccines continue to play in the prevention and treatment of infantile upper respiratory infections? Personally, I am very enthusiastic about the use of increasing doses of mixed respiratory vaccines that are given at regular intervals over a long period of time to reduce the incidence of so-called colds. House dust sensitization is, I believe, of equal importance and hyposensitization with stock house dust is incorporated in my routine management of this problem. Tabulation of my results awaits a longer period of time.

Other minor conditions seen in the infant which are thought to be allergic in character, and depend upon the location of the tissue or organ affected, are as follows: croup, serum sickness, contact dermatitis, pruritus, bladder and urethal spasms, hives, drug sensitivity, dermatitis venenata, mucous colitis, cyclic vomiting and perhaps some forms of purpura. Many personal experiences with such conditions of unusual character, I am sure, run through your minds and would be very useful to any physician who cannot help but realize that allergy has an important place in the study and care of infantile diseases.

The neurogenic factor in the allergic infant does not play such an important role as it does in the older individual.

In conclusion, may I repeat that the treatment of these various allergic conditions depends upon two things: a careful diagnosis and an accurate and thorough treatment. Successful management primarily depends upon a correct diagnosis which involves a detailed history, protein skin tests, and a thorough physical examination employing necessary diagnostic aids. Many times the history alone makes the diagnosis. What are the patient's contacts? What seems to be the causes? What gives relief? Is there an allergic family history? Does the patient have any other form of allergy? In most instances among infants, the history is much more important than is the skin testing. Skin testing is, however, a valuable adjunct to a careful history. It must be done thoroughly, accurately, and by one capable of correlating these definite findings with other factors in the case. It is not dangerous and is not especially painful. Evaluation of the tests is difficult for infants. The local passive transfer technique of testing, as mentioned before, is also valuable at times as a check on other tests. In some instances where both the scratch and intradermal tests are negative, valuable information can be obtained by careful conjunctival testing. Sometimes we know a patient is clinically sensitive to some proteins, yet he will not show positive skin reactions. It is most important to remember that every positive skin test does not mean that the patient is clinically sensitive to that particular protein. Skin tests are sign posts, valuable to lead the way but very dangerous if followed alone. Provocative testing by purposely reproducing the same disease, if it can be done safely, gives valuable information.

Secondly, the successful management of the allergic infant depends upon accurate and thorough treatment over a long period of time. Complete elimination of all possible causative factors is absolutely necessary, be they foods, animal emanations, house dust, pollens, or miscellaneous proteins. We as physicians must have at our command information on how to eliminate suc-

cessfully these causes, and be able to instruct the parent in the technique of elimination, and to make him realize the importance of it all. Hypo-sensitization is important and valuable in some selected cases. Truly this is not void of dangers, but it is necessary treatment for desensitization for house dust, cottonseed, orris root, and some animal emanations such as horse dander and dog hair. If this method is used by one well qualified and experienced, the results make worthy the trial.

The necessity for accuracy and faith in it ourselves as physicians must, of course, be our initial qualification. The parents will meet many adverse criticisms from laymen who will declare it all a fad or a racket. The course of treatment is long, hard, and expensive, but the results for the most part are gratifying, especially in the infant. The allergic baby certainly will make a healthier child if in early life it is deprived of the known offending substances.

In allergy the "unknown factor" still exists. The future certainly will help solve the problems now confronting the student of allergy. But even with our present limited information, we do not need to leave the allergic infant in the class of the incurables. We have already a good foundation on which to build, and a careful study of this phase of medicine by all of us will certainly improve the present and future health of our patients.

SUMMARY

1. The treatment of allergy is not a panacea for all ills, neither is it a fad or a racket.

2. The allergic infant needs the care of the general practitioner, the otolaryngologist and the pediatrician.

3. The diagnostic work to be done is not dangerous but must be thorough and accurate.

4. The results are better than those obtained in most of the other chronic diseases.

5. The allergic baby needs a foundation on which to build to avoid other allergic mishaps —give him a break.

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DISCUSSION

Dr. I. H. Tumpeer, Chicago: This discussion unfortunately cannot refer as specifically as desired to the details of Dr. Cline's paper, owing to the fact that circumstances make it impossible for me to hear his discussion. From the abstract which I have seen, I am impressed with the fact that the important phases of allergy in infancy are covered.

I merely wish to emphasize the following factors. The allergic infant is that baby which the earlier pediatricians endowed with the name of diathesis. These babies manifest such conditions as eczema, pylorospasm, craniotabes, and other signs of rickets, frequently manifesting a persistent thymus. As they grow older, they develop other signs of allergy, namely, hives, asthma and hay fever.

An hereditary background may be determined in practically 100% of allergic infants. This figure is higher than is obtained in any other allergic group because more accurate histories are obtainable.

From the standpoint of the specialty of allergy, it should be noted that the etiology of specific allergic conditions in early infancy is usually bound up with diet. For instance, babies may be born sensitive to some food in which the mother indulged excessively during her pregnancy. Data have been collected indicating that the placenta is permeable to proteins. In other words, there may be such a thing as transmitted allergy. Of the foods, milk is probably the most important, eggs and cereals next, and vegetables least of all. On the basis of this grouping, many vegetable feedings have been devised, for instance, cemac, almond milk, and soy bean milk. It must be emphasized that inhalant substances soon become important; indeed, inhalants may be the only causative factor. Only recently, I have encountered two cases of widespread eczema on an inhalant basis.

Just as we have learned in infant feeding that any feeding materials will give good results if properly used, any method of testing will prove satisfactory if the potency of the testing materials and the experience of the physician are in proper balance.

In this fragmentary presentation I wish to emphasize one last thought which concerns the practice of clinical pediatrics. The allergic infant is a delicate mechanism which is easily disturbed. Disease processes play tricks on these babies, probably because of their unusual reactivity and provoke a response, frequently out of proportion to the disease. The allergic infant is apt to react in a violent and bizarre manner to infection.

It is a privilege for the pediatrician to hear the illuminating and mature account which Dr. Cline has presented.

Dr. Craig D. Butler, Oak Park: One of the biggest helps in the allergic problem in infancy is the history. The younger the child the simpler the history. I have found it a good deal of help in caring for babies of this type to have the mother keep a written log, not necessarily every day, but at the time of every flare-up in the asthma or eczema, so that we know every experience the baby has had in the last twenty-four to thirty-six hours and every food element he has taken. Comparing four or five of these flare-ups one often stumbles

on to some very definite antigen which is responsible. It is often of more help than skin testing to keep a careful history.

Dr. J. P. Burgess, Rock Island: I have thoroughly enjoyed this very complete presentation of Dr. Cline. There are one or two things I would like to mention. He brought out one point, that often manifestations of allergy are due to some other cause. Last year I saw an infant with eczema which flared up with local applications to the eczema. He was then six or seven months old. About two weeks ago they brought this infant in with asthma, which shows they do sometimes manifest their allergy by different diseases.

In testing these babies it seems to me that very often one gets as good results by starting in with some plan of elimination without going through the discomfort and major expense that is entailed by skin tests. Mention was made of the fact that we have relied almost entirely upon elimination, rather than upon desensitization in the treatment of the allergic infant. That is one point in which the handling of these infants differs from the handling of older children and adults. It was also brought out that there is considerable expense involved in the care of these babies, but it does not seem that the expense involved in going through the testing and elimination that is necessary is comparable to the degree of discomfort that these eczematous infants have to endure and the amount of work that the mothers have to do in care of the colic and vomiting in babies that have pylorospasm on the basis of some allergy.

Dr. G. F. Munns, Winnetka: I would like to emphasize one point about allergic testing. I believe that in the hands of the average practitioner it is not satisfactory for several reasons. In the first place, a considerable number of extracts are necessary and they should be kept fresh. In the second place, it is a rather meticulous task to do a number of tests on babies and children, and the average busy pediatrician does not have enough time to see that it is properly done. For that reason I believe the tests will be much more satisfactory if you refer the children you wish to be tested to men who specialize in doing that work. The results will be more accurate. I think that these are perhaps a few reasons why we have made rather slow progress in allergic testing. In the hands of the men who know how to make the tests and who use fresh extracts, in the great majority of cases the results are very satisfactory.

Dr. Henry E. Irish, Chicago: I have been very much interested in treating allergic patients from an allergic standpoint. I think we have been fortunate in having the paper presented to us by a man of national reputation. It perhaps affords us opportunity to ask a question or two. I have been much in doubt as to whether or not we should not have a re-definition of the term allergy as it was originally given to us by Pirquet and has by a process of extension and adaptation been used in the immediate past. I wonder if Dr. Unger could clear us up. You will recall, perhaps, when Pirquet introduced the term allergy he defined it as a reaction occurring after the injection of a series of doses of protein, the reaction being different from that occurring after the first injection of a protein. Is it proper to use the term allergy applied to reactions other than those of protein origin? Must these proteins be derived from food substances or can we consider bacterial proteins also as within the scope of the definition?

I have been startled at some of the statements that I have heard at meetings in which there has been an attempt to describe or include hyperreactions of all kinds as being allergic. Such things as epilepsy, hysteria and all sorts of hyperreactions which very properly may be conceived as being neuropathic in nature, are put down as allergic. Is there a variation in degree of normal defense reaction that is not produced by protein? If one analyzes, one sees nothing in allergy that is not contained in the normal armamentarium of defense of any animal. I could go into that in detail to show that these reactions are either those of muscle contractions or changes in secretion, which are the defense bases of all tissues. I believe that much of the difference of opinion in discussing allergy arises from confusion as to whether we are talking about allergic reaction to protein or about hyperreaction and insult to tissues.

Dr. Leon Unger, Chicago (closing): Answering Dr. Tumpeer, I do not believe that craniotabes is of importance in allergic conditions nor am I convinced of the role of the persistent thymus. There is no doubt that a child with an enlarged thymus can have difficulty in breathing from a mechanical viewpoint but this is not allergy. The typical prolonged expiratory wheeze of bronchial asthma is not present.

Milk sensitization is common in children but the older the person the fewer cases of trouble from milk do we find. Skin tests for milk, both cutaneous and intracutaneous, have not proven very satisfactory.

Answering Dr. Burgess, the fact that eczema is a forerunner of asthma was not emphasized sufficiently in Dr. Cline's paper. This is a very important point. In many of our asthmatics there is a history of eczema in childhood. I don't know how many cases of eczema develop bronchial asthma. It is very important to test children with eczema so as to prevent the onset of bronchial asthma in later life.

Skin tests before the age of nine months are unsatisfactory.

In children sensitive to milk, wheat or eggs desensitization can usually be accomplished by oral feedings. Where cooperation on the part of the parents is poor we resort to the hypodermic method of desensitization to these three foods. Desensitization is not used for other foods as they are not considered vital.

In regard to the point brought up by Dr. Munns, there is no reason why pediatricians should not make skin tests; the trouble lies in the fact that only a few pediatricians are making tests correctly. They are the ones who have complete outfits, which include about three hundred different materials, and they make the tests conscientiously and carefully. They are the physicians who should and probably are getting good results. Unfortunately, many pediatricians make ten or

twenty tests and inform the parents that the patients have been skin tested. To my mind such procedure is no more skin testing than a cursory examination of the tongue and palpation of the pulse constitute a physical examination. Such incomplete skin tests do more harm than good.

Intradermal testing should be used if the cutaneous tests do not give adequate information. The materials must be fresh and the injections must, of course, be made under sterile conditions.

Some pediatricians refer their allergic children to men more experienced in this particular line. I am sure that the allergists are perfectly willing to cooperate and refer the patients back to these pediatricians if they so desire.

I know that both Dr. Cline and I agree with Dr. Corper's remark about colic. Certainly, all colic is not allergic. Colic may be one of the earliest allergic symptoms.

Answering Dr. Irish, by anaphylaxis we mean artificial hyper-sensitivity; by allergy we mean natural hypersensitivity. The French confuse the two and frequently use the word "anaphylaxis" and divide it into animal and human.

We know very little concerning bacterial allergy. Cutaneous tests with bacterial proteins are almost invariably negative and we have long since given up this form of testing. Intracutaneous tests with bacterial proteins are frequently positive.

It is not necessary to ingest a protein to obtain an allergic reaction, as witnessed by patients who develop asthma or urticaria from aspirin or quinine. Landsteiner believes that such non-protein drugs combine loosely with the protein of the blood serum and that this combination breaks up explosively causing an allergic reaction.

True epilepsy is not allergic although a few cases have been reported where epileptiform convulsions have been definitely shown to be due to hypersensitiveness.

INTRAVENOUS MERCUROCHROME THERAPY

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This paper is designed to present a case of general purulent peritonitis following acute gangrenous appendicits, which was rapidly cured by a single intravenous injection of mercurochrome. Owing to the advanced age and extremely low resistance of the patient, the sudden disappearance of the profuse purulent discharge from the peritoneal cavity, and the peculiar urine and blood findings following the injection of mercurochrome, this case constitutes an interesting addition to the report of 400 cases made in this journal in June, 1935.[1]

The patient, a white female, 48 years old, was suddenly seized with severe abdominal pains, which she attributed to indigestion. She took two Hinkle pills and an enema. Her condition became worse. She was examined about 35 hours after the onset of the illness, when a white cell count revealed 18,000 leukocytes. Appendectomy was performed immediately.

A right rectus incision was made and the peritoneum opened. A moderate amount of dirty brownish fluid was found in the peritoneal cavity. The appendix was 7 cm. long and 2 cm. wide. The serosa was dull gray to crimson in color, roughened and ragged, covered with plaques of purulent exudate. The vessels were engorged. The lumen showed a ragged and necrotic mucosa. The meso was thickened and infiltrated, rendering its ligature en masse impossible. The posterior aspect of the cecum was deeply injected. No distinct pus collection could be found anywhere. A cigaret drain was inserted and the abdomen closed. The patient was placed in Fowler's position and two hypodermoclyses of normal saline, 1,000 c.c. each, were given.

Events following the operation:

(a) *Purulent discharge.* The discharge from the drain, scanty and seropurulent at first, became gradually more and more abundant and purulent. About 80 hours after the operation it was so profuse that when the patient leaned over the right side the dressings (10 compresses and two large pads) would become soaked through and through within 45 minutes.

(b) *Abdominal distention, tenderness and rigidity.* The patient complained of distention and gas pains about 30 hours after the operation. A milk-and-molasses enema brought about the expulsion of flatus and a small amount of feces, with marked relief. Nevertheless, the distention and pains returned a few hours later, and another milk-and-molasses enema was administered—this time with little relief. A rectal tube was inserted. From this moment on the distention and pains persisted and became gradually more marked in spite of various measures, such as 1-2-3 enemas, pituitrin, repeated insertion of a rectal tube, and stupes to the abdomen. There was marked tenderness and a moderate degree of rigidity.

(c) *Vomiting and hiccup.* The patient drank water and tea, without being nauseated at all for the first 55 hours. At this time an effortless vomiting appeared, consisting of greenish fluid. It became more and more frequent, and about 100 hours after the operation assumed a distinctly fecaloid aspect with a repellant odor. With the fecaloid vomiting hiccup appeared.

(d) *Temperature.* For the first 84 hours following the operation the temperature ranged from 98 to 100. At one time it dropped to 97. At this time the patient received 1,000 c.c. of glucose, 10%, intravenously and 5 hours later 1,000 c.c. of normal saline by hypodermoclysis. The temperature rose to 100.4, but dropped again within four hours to 99.2. Another intravenous

1. Intravenous injections of mercurochrome in 400 cases. Arthur P. Martin. Ill. Med. J., 67: 539-551, June, 1935.

injection of 1,000 c.c. of glucose, 10% in distilled water, was administered, followed by a hypodermoclysis of 1,000 c.c. of normal saline within four hours. The temperature rose again and reached 102.4°F. per mouth 6 hours after the hypodermoclysis. It dropped again to 99.6 three hours later. Another intravenous injection of 1,000 c.c. of glucose, 10% in distilled water, was given about 11 hours before the injection of mercurochrome. This time the temperature remained about 99.6, although the patient's condition grew rapidly worse.

(e) *Pulse.* The pulse fluctuated about 70 for the first 40 hours. At this time it reached 85 and gradually rose to 104 about 90 hours after the operation. Then it followed more or less closely the rise of temperature attendant upon the intravenous infusions of glucose and hypodermoclyses of normal saline, reaching 138 when the temperature was 102.4. It dropped again to about 90 when the temperature returned to 99.6. However, when 110 hours after the operation the patient's condition became alarming and the fecaloid vomitings were persistent and harassing, the pulse rose to 108, whereas the temperature remained at 99.6—the first distinct indication of dissociation of pulse and temperature, which was to become gradually more and more accentuated. Within 8 hours it reached 120 to 125, while the temperature remained about 99.8.

(f) *Leukocyte count.* A white cell count made 70 hours after the operation revealed 8,650 leukocytes. Fifteen hours later it dropped to 4,950 and nine hours later it was only 4,000. About 105 hours after the operation, following two intravenous injections of glucose and two hypodermoclyses, it rose to 6,600 and a few hours later to 8,000—just before the injection of mercurochrome.

(g) *Urine.* On the day following the operation the urine contained traces of albumin, occasional epithelial cells, and some casts and debris. About 80 hours after the operation it contained a heavy trace of albumin, a few epithelial cells, and debris. Within 24 hours the albumin reached two plus and remained at this level until the time the mercurochrome injection was given. At the same time the casts and debris increased considerably in amount.

(h) *General condition.* On the third day the patient often complained that she "did not feel good." She became gradually more and more nervous and irritable. The face was pale and the eyes sunken at the time of the mercurochrome injection.

(i) *Blood culture.* A blood culture made about 36 hours before the injection of mercurochrome proved negative.

Injection of mercurochrome. It was given exactly 5 days (120 hours) after the operation. The dosage was about 6 milligrams per kilogram of body weight, based upon her weight before she became ill. It was started at 12:00 midnight and terminated at 12:04 A. M. Temperature 99.8, resp. 24, pulse 120.

Events following the injection: All temperature readings are per mouth.

12:15 A. M. Temp. 101, resp. 22, pulse 120. The patient feels warm and "gassy." She begins to belch noisily, bringing up a considerable amount of gas.

12:20 A. M. She vomits 10 c.c. and a few moments later 12 c.c. of a dark grayish, green fluid containing an abundance of debris. The belching continues, and the amount of gas expelled is so great at times that the patient almost chokes.

12:25 A. M. The belching is intermittent. Third vomiting of 12 c.c. of same material.

12:30 A. M. (30 minutes after the injection). Temp. 101.4, resp. 28, pulse 126. The bladder is catheterized, and about 2 ounces of urine are obtained. A typical mercurochrome reddish amber tinge is noted. It contains albumin two plus, and many casts, epithelial cells, and debris. Sp. gr. 1,035.

12:40 A. M. Fourth vomit of 5 c.c. of same material. The patient feels no difference in her condition. Her abdomen still aches. However, the abdominal distention is distinctly less marked.

12:45 A. M. The patient voids 15 c.c. of fecal material having about the same aspect as the vomit. The face is flushed. Rectal tube inserted.

12:50 A. M. Temp. 101.4, resp. 28, pulse 120. The patient belches again and vomits twice, the total amount of material expelled being about 40 c.c.

12:55 A. M. She vomits again 6 c.c. of the same material. She complains that she is tired and sits up in bed, asking for a hypodermic.

1:00 A. M. (1 hour after the injection). Temp. 101.2, resp. 26, pulse 120. Liquid fecal material mixed with gas is continuously flowing through the rectal tube into a glass urinal. The abdomen is softer and less sensitive to pressure.

1:05 A. M. The patient states that her abdomen feels better, although it still hurts. She does not feel so miserable and ill.

1:15 A. M. Temp. 101, resp. 22, pulse 118. She belches from time to time.

1:25 A. M. She vomits twice again, bringing up about 35 c.c. of the same material, which is becoming gradually thinner. She can turn over either side with great ease.

1:30 A. M. (1 hour, 30 minutes after the injection). The bladder is catheterized again. Seven c.c. of urine are obtained. A characteristic mercurochrome deep yellow orange color is present. Albumin, casts and debris are found in the same proportion as in the previous specimen.

1:35 A. M. Temp. 101.8, resp. 30, pulse 122. The patient belches from time to time and vomits 25 c.c. of same material. She feels much better. About 6 ounces of liquid feces have been expelled into the urinal through the rectal tube.

2:00 A. M. (2 hours after the injection). Temp. 101.6, resp. 32, pulse 126. The patient states that she feels over 50% better. She does not feel ill, and her mind is clear. The abdomen is quite soft and only slightly distended and tender. She can flex her legs with great ease. The dressings are changed; they are saturated with a faintly rose-tinted purulent discharge.

2:30 A. M. Temp. 101.6, resp. 30, pulse 126. Morphine sulphate, 1/6 grain is given.

4:00 A. M. (4 hours after the injection). Temp. 102, resp. 30, pulse 128. The patient slept at intervals and vomited 3 times, bringing up a total of about 20 c.c. The abdomen still hurts.

8:00 A. M. Temp. 101.4, resp. 30, pulse 120. The patient slept at intervals. Belching and vomiting less and less frequent. The dressings are changed; they are saturated with a thin seropurulent discharge presenting a rose tinge.

10:00 A. M. (10 hours after the injection). Temp. 100.4, resp. 28, pulse 120. She vomited about once or twice every hour.

2:00 P. M. (14 hours after the injection). Temp. 99.4, resp. 24, pulse 110. In the last four hours she vomited 7 times, bringing up a total amount of about 100 c.c. of dark, greenish fluid. She received 1,000 c.c. of normal saline by hypodermoclysis. She is nervous and restless at times, although she feels well.

9:00 P. M. (21 hours after the injection). Temp. 101, resp. 28, pulse 120. She vomited only four times, bringing up about 100 c.c. of dark fluid. She received another hypodermoclysis of 1,000 of normal saline. She had two evacuations of a dark brown liquid fecal material, totaling about 8 ounces.

6:00 A. M. (30 hours after the injection). Temp. 99.4, resp. 24, pulse 98. She vomited only three times, the amount expelled being about 5 ounces. She received 1,000 c.c. of glucose, 10% in distilled water, intravenously. Nervous at times, but feeling well. The abdomen is still slightly sensitive. The dressings are changed; they are saturated with a very thin serous discharge. No tinge of mercurochrome present.

11:00 A. M. (35 hours after the injection). Temp. 99.6, resp. 28, pulse 100. She vomited only twice, but was able to drink ginger ale. She feels very well and wants to know when she will get up. The dressings are changed. They are slightly saturated with a thin, watery discharge. The drain is removed with difficulty, the inner end of the gauze strip being stuck (it had not been pulled out for the last three days). Streaks of blood were present on the inner end of the gauze (the intra-abdominal portion of the drain measured 9 cm.). Cultures were made from the inner end and the middle portion of the gauze strip; they were found negative. A direct smear on a slide from the inner end of the gauze revealed one leukocyte per ten fields and no bacteria. A smear from its middle portion revealed one leukocyte per fourteen fields and no bacteria. The patient felt considerably relieved after the removal of the drain.

The recovery was uneventful. On the fourth day she developed diarrhea. She probably had about 15 bowel movements in one day. No blood was found in the stools. She felt very well. However, her appetite remained poor. She went home nine days after the injection of mercurochrome in good condition and able to walk.

Leukocyte count. Following the injection of mercurochrome the white cell count rose gradually until it reached 14,000 on the fourth day. It remained at this level with slight fluctuations for several days (see chart).

Urine. Daily urine analyses revealed that the kidney function became gradually better after the injection. Albumin, epithelial cells, casts, and debris diminished in amount. Only traces of albumin were found on the 9th day.

Blood analysis. The non-protein nitrogen content of the blood was 12 milligrams per 100 c.c. on the fourth day following the injection of mercurochrome and 25 milligrams on the seventh day.

Calculation of dosage. While it is an easy matter to calculate the dosage in an ambulatory patient or in one who receives the injection two days after the onset of the illness or the operation, it becomes very difficult to estimate it in a patient who has not been able to take any nourishment for several days and has been deeply dehydrated as a result of incessant emesis. In this case the loss of weight the patient may have undergone has been disregarded, and the dosage was based upon her normal weight—approximately 6 milligrams per kilogram. However, she received 5,000 c.c. of fluids in the form of hypodermoclyses of normal saline and intravenous injections of glucose within 36 hours before the injection of mercurochrome. If the loss of weight is taken into consideration, the dosage administered to this patient might have represented 6.5 milligrams per kilogram of body weight.

Preparation of the patient for the injection. In the paper which appeared in this journal in June, 1935, we recommended the restriction of fluids in ambulatory patients and those who are not dehydrated for at least six hours before the injection of mercurochrome in order to avoid too great a dilution of the drug in the body tissues. In this case we administered 5,000 c.c. of fluids hypodermically and intravenously with the purpose of correcting the dehydration and enabling the kidneys to resume their normal function. At the same time it was thought necessary to employ intravenous infusions of glucose in order to restore the function of the liver, which must have undergone damage as a result of repeated emesis. Had this high dosage been given before correcting the dehydration and carbohydrate starvation of the liver, mercurochrome might have caused serious damage to the kidneys and precipitated the patient's death. It is presumable that some of the cases of fatal outcome ascribed to this drug may have been due to an inadequate preparation of the patient.

Comments. This case presents many interesting points.

(a) The patient presented a low vitality as indicated by the low white cell count and the lack of febrile reaction in spite of the progress of the peritoneal involvement. Nevertheless, she was not affected at all by the injection of mercurochrome. Her kidneys functioned better than before the injection and the drug was rapidly eliminated.

(b) The reaction set up by mercurochrome was the mildest we have ever seen (we have given over 600 injections in the past nine years). There was not the slightest indication of a chill, and the temperature rose only to 102 per mouth. The pulse did not show any appreciable variation. There was no discomfort whatsoever attributable to the reaction. On the contrary, the relief was spectacularly rapid.

(c) Owing to the already established reversed peristalsis the patient evacuated a large amount of the bowel contents (gas and fecal material) per mouth.

(d) The diarrhea, which usually supervenes within 12 to 24 hours following the injection, did not appear here before the fourth day. The mucosanguineous discharge, which is rather common after high dosages, was entirely absent.

(e) The purulent discharge from the drain presented a characteristic mercurochrome tinge within two hours after the injection. This indicates that the peritoneal serosa was impregnated by the drug, which explains its speedy sterilization and the spectacular disappearance of the purulent discharge.

(f) After the injection of mercurochrome the leukocyte count rose rapidly and reached about 14,000, in spite of the fact that the patient improved steadily and evidently every focus of infection in the peritoneal cavity had been eliminated. It returned to about 10,000, rather suddenly, on the ninth day. The explanation of this phenomenon is not clear. One may assume that the blood forming organs, which had been so depressed before the injection, were stimulated and maintained a high degree of activity for several days. In previous cases in which the infection was more virulent and the injection was given within 2 days following the operation, the white cell count, very high before the injection (29,000 in one case, 19,000 in another), dropped at the rate of 1,000 per hour for the first few hours and continued falling until it reached a normal level.

(g) On the days following the injection of mercurochrome the nuclei of the polynuclear leukocytes presented pointed, instead of rounded, ends. This may indicate hyperactivity of the blood forming organs. The aspect of the nuclei became normal again on the fourth day.

Recommendations. On the basis of this case and the report of 400 cases made in this journal in June, 1935, the following recommendations are offered with regard to the intravenous use of mercurochrome:

1. The lowest reliable dosage is 6 milligrams per kilogram of body weight. While 5.5 milligrams may be sufficient in infections produced by microorganisms possessing a low resistance to antiseptics, this dosage is likely to fail in most cases. The dosage of 5 milligrams recommended by Hugh Young as high was found absolutely insufficient.

As we pointed out in the previous article, the results of intravenous mercurochrome injections depend on—(1) the degree of resistance of the offending microorganism, and (2) the blood supply to the structures involved. Consequently, *there is no absolute minimal or maximal dosage.* Even 6 milligrams per kilogram may be a low dosage in many cases. *Underdosage, absolute or relative, is the only cause of failure.* What one must seek is a *direct bactericidal effect* and not a bacteriostatic one. It is because the previous experimenters were relying on bacteriostatic effects that they failed to reach their goal. No one probably registered as many failures as the author, but it was the failures that pointed the way to success, which lies exclusively in the use of high dosages. It must be emphasized here that *it would be a disaster to miss the correct dosage in rapidly fatal infections;* the patient will die from the effects of the unarrested infection before he recovers sufficiently from the reactional mercurochrome disturbances to be able to receive a higher dosage. *In the face of a critical situation it is by far better to lean toward an overdosage than toward an underdosage.* The author has in numerous cases resorted to dosages of 6.2 to 6.5 milligrams per kilogram of body weight without any mishap. However, one must be certain that the kidneys function fairly well.

2. In ambulatory patients and in those who have been ill for only a short space of time the fluids should be restricted during the six hours preceding the injection of mercurochrome. Extensive experience has led us to the belief that the *secret of success with intravenous mercurochrome therapy lies in raising the concentration of the drug in the body tissues to a degree that will render it bactericidal within a short space of time.* Indeed, mercurochrome is eliminated rapidly. Already half an hour after the injection the urine presents a distinct orange tinge, which becomes darkest within about three hours.

3. In patients who as a result of prolonged illness are depressed and dehydrated it is necessary to correct the dehydration by hypodermoclysis of normal saline and intravenous injections of glucose before administering mercurochrome. If this precaution is overlooked, the kidneys, temporarily inhibited, may not eliminate the drug, and toxic effects may arise therefrom.

4. In obese patients a deduction of 1/5 to 1/10 of the total weight, according to the degree of adiposity, must be made in calculating the dosage. Thin persons should receive the full dosage corresponding to their weight.

5. The intravenous mercurochrome therapy must be resorted to before the kidney function is deeply impaired and the myocardium degenerated.

Summary. A case of general purulent peritonitis following acute gangrenous appendicitis was treated, with overwhelming success, by means of a single intravenous injection of mercurochrome. The profuse purulent discharge emanating from the peritoneal cavity disappeared entirely within 35 hours following the injection, and the intraabdominal portion of the gauze strip, when removed at this time, gave negative cultures. The reaction set up by the injection was so mild that it caused no discomfort whatsoever to the patient; there was no chill, and the temperature rose only to 102 per mouth. Daily urine analyses revealed that the condition of the kidneys, as indicated by the amount of albumin, epithelial cells, casts and debris, was better after than before the injection of mercurochrome. The leukocyte count, which had dropped to 4,000 before the injection, rose to 14,000 after it and remained at this level until the ninth day when it suddenly fell to 10,000. The nonprotein nitrogen content of the blood was 12 milligrams per 100 c.c. on the fourth day following the mercurochrome injection and 25 milligrams on the seventh day.

55 East Washington Street.

BLOOD

Date	9-3-35	9-6-35	9-7-35	9-8-35	9-9-35	9-10-35	9-11-35
	Appendectomy			Mercurochrome			
Erythrocytes per c. mm.			4,260,000	4,080,000	3,960,000	4,080,000	
Leukocytes per c. mm.	18,000	8,650	4,000	8,000	8,800	9,450	10,600
Erythrocytes, color							
Small lymphocytes	10%	15%	2%	4%	8%	5%	6%
Large lymphocytes	3%	8%	6%	5%	4%	11%	9%
Large mononuclears							
Polynuclear: Neutrophiles	79%	71%	76%	78%	66%	57%	70%
Eosinophiles							
Myelocytes	4%	2%	13%	7%	12%	19%	6%
Myeloblasts							

BLOOD

Date	9-12-35	9-13-35	9-14-35	9-15-35	9-16-35	9-17-35	9-18-35
Hemoglobin							
Erythrocytes per c. mm.	3,500,000	3,740,000	3,960,000			3,580,000	
Leukocytes per c. mm.	14,600	12,500	16,400	13,900	11,700	13,400	10,800
Erythrocytes, color							
Small lymphocytes	4%	6%	2%	4%	16%	4%	2%
Large lymphocytes	3%	10%	19%	6%	10%	7%	19%
Large mononuclears							
Polynuclear: Neutrophiles	84%	79%	73%	82%	73%	79%	75%
Eosinophiles							
Myelocytes	5%	3%	1%	3%		4%	1%
Myeloblasts							

THE TREATMENT OF LUNG ABSCESS AS JUDGED BY 101 CASES

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During the years 1933-34 more than 160 patients were admitted to the Cook County Hospital with a diagnosis of lung abscess. Definite diagnostic criteria must be applied to any group of patients to determine the true value of different modes of treatment. Expectoration of large quantities of foul pus in patients after a "cold," pneumonia, or operation about the upper air passages combined with dullness, large moist râles, and changes in breath sounds were highly suggestive of a lung abscess. X-ray films of the lungs usually confirmed this suspicion, while bronchoscopic examination and post mortem records authenticated the diagnosis. Some of the group had only one of these diagnostic features, while a majority had two or more. No case of tuberculous abscess as considered in this study. With the exception of three cases of multiple abscesses, all were classified as solitary.

The treatment was considered under four main types.

General Medical Care. General medical care constituted the first group. Bed rest, adequate nutritious diet, and proper postural drainage were the essentials. Supportive measures as liver extract and ferric ammonium citrate for anemia; antipyretics for high fever; and phenobarbital, chloral hydrate and bromides were given for sleeplessness. The amount, character, and microscopic examination of the sputum should be recorded daily as it furnishes a good index of the progress of the patient.[1] Ten cases whose sputum contained spirillae and fusiform bacilli of Vincent were given intravenous injections of neoarsphenamine in 0.15-0.30 Gm. doses every 6 to 14 days with excellent results. Two drugs were used in an attempt to influence the character of the sputum. Creosote and guiacol carbonates in 1-3 Gm. doses were given daily to 12 patients with no evident beneficial effects. In one patient large doses of potassium iodide, grains xxv-xl daily, were administered in an attempt to thin the secretion. The patient grew steadily worse and died 12 days after this treatment was begun. It appeared that not only had liquifaction of the bronchial secretion taken place but also of the wall of the abscess; a gradual increase in the size of the abscess had taken place so that at death it involved more than half the lung. Good general nursing care was therefore the main treatment of these patients.

Too little attention has been given to this phase of the treatment, despite the fact it has been repeatedly advocated over a number of years.[2-3-4-5-6-7] A number of years ago Dr. Jesse Gerstley pointed out that when we treated the child, not the stool, remarkable progress was made in pediatrics.[8] This principle is emphatically true in the treatment of lung abscess. If we treated these patients more and the abscesses less better results would accrue.

Postural drainage deserves special mention. Many methods have been suggested to accomplish gravitational drainage. These include: special beds, head-rests, mattresses, even tightly laced boots that are strapped to the foot of the bed so that the patient actually dangles in bed by his feet.[9-10] The aim of all postural drainage is to have the patient's head and chest lower than the pelvis. Simply elevating the foot of the bed by extention legs or putting a chair, table, or wooden horse under the lower cross bar of the foot of the bed will accomplish this desideratum. Beds equipped with castors must have them removed before tilting or they must be firmly anchored by suitable blocks. Any elevation more than 5° with the floor is annoying to the patient as he continually tends to slip down toward the head end of the bed. Shoulder braces similar to those used on operating tables for the Trendelenburg position have been suggested.

Too fairly firm pillows or sand bags on either side of the bed with a space for the head will achieve the same end. The pillows rest against the supporting bar at the head end of the bed and are of sufficient length and firmness to prevent the patient's head from striking the head of the bed. Ordinary pillows folded across the middle worked well.[11] They were found to be large enough to brace the patient's shoulders and keep the top of his head at least 4-6 inches from the upper end of the bed. It is preferable to

From the Medical Service of Dr. Don C. Sutton, Ward 15.
Read before Section on Medicine, Illinois State Medical Society, Rockford, Ill., May 22, 1935.

incorporate these improvised shoulder braces as part of the bed. An additional draw sheet spread lengthwise across the top of the pillows and firmly drawn in at the side of the mattress is needed. Six or more safety pins or ordinary cotton tape will fix the pillows in position, prevent them from shifting, and serve to draw up any creases in the sheet, thus providing a more comfortable space for the head.

The amount of tilting varies with the condition of the patient. In large or recently ruptured abscesses angles of 8-11° are needed. Some patients will find this uncomfortable. If so, they can be put up at 11° for one hour twice or thrice daily and then restored to 5° for the remainder of the twenty-four hours. Practically none objected to prolonged 5° elevation of the bed.

Many patients complained when the bed was first tilted. Fullness in the throat, throbbing of the vessels of the neck, headaches, transient

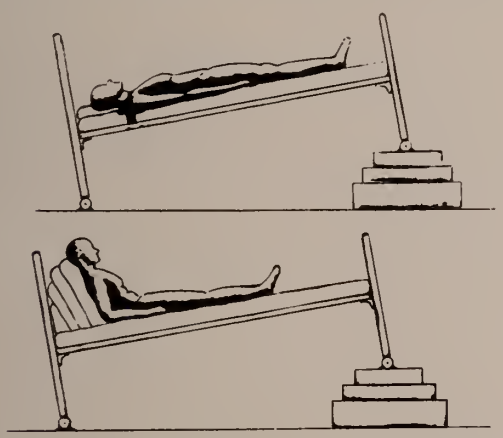


Fig. 1. Upper drawing. A postural method that effects gravitational drainage. Shoulder braces, shown in black are necessary.

Lower drawing. The common error of allowing the patient's head to be braced by a few pillows, thus substituting the Jack-knife position for that of gravitational drainage and defeating the aim of postural treatment.

vertigo, and even nausea were experienced. All disappeared within 3-4 days. Some patients can not tolerate more than a 10° elevation without persistent complaints, others will not object to a 12° angle. This uncomfortableness may defeat the aim of postural drainage. Left to themselves, many patients attempt to correct these slight symptoms caused by the new position, by slipping one or more pillows under the head. Occasionally they build up such large head-rests that their pelves are actually lower than their heads and chests. This substitution of the jack-knife position for that of postural drainage will prevent any gravitational flow of pus, despite great tilting of the bed. (See Fig. 1.) A brief explanation of the aim and effectiveness of this type of treatment should be given to both the nurse and the patient before the bed is tilted. With their co-operation an effective gravitational drainage of pus and secretion will follow, rather than a compromisingly comfortable postural attitude. Some patients will object to the vile smelling and bad tasting sputum that is expectorated. Mild astringent mouth washes and warm alkaline aromatic gargles will overcome this objection.

When it is evident that simple tilting of the bed is not effective, drainage should be reinforced by additional gravitational methods. These include: having the patient hang over the edge of the bed (Von Quincke position), lie across the bed with the head down, or support himself in this position with his hands on the floor.[12] During this time it is important to have the patient take deep breaths to encourage a more complete emptying of pus. A 10% carbon dioxide mixture in oxygen has been suggested.[1—13] Having the patient breathe in a stout paper bag will accomplish this. The frequency and length of these postural changes depend upon the amount of expectoration and the condition of the patient. Usually 4-7 times daily are sufficient. It was found advisable to cover a portion of the floor on which the pus basin was placed with large sheets of paper. With the expectoration of large amounts of pus there is generally some soiling of this paper which can be destroyed by routine incineration. In this way the floors and surroundings are kept clean and the spread of infection is reduced.

The integrity of the cough reflex largely determines the success of postural evacuation.[14] Codeine and opiates are specifically contraindicated in lung abscess. A deadened cough reflex will allow pus to accumulate in the bronchi and stagnate or be aspirated into neighboring bronchi. It is a frequent bronchoscopic observation that the field may be aspirated entirely free of pus, only to have pus well up from the affected bronchus after a slight cough. Dr. Chevalier Jackson[15] has aptly called the cough reflex the "watch dog

of the lungs." He describes the evacuation of secretion and foreign material from the larger bronchial tubes by the forceful expiratory gust during a cough as the "bechic blast." More effective than this is the actual squeezing down of the lung on itself—the tussive squeeze. These combined with cilial activity are powerful methods of evacuating pus, débris, and foreign bodies from the lungs. Loss of the cough reflex paralizes this activity and allows the pus in the abscess to stagnate. When should we begin postural drainage? As soon as a patient is suspected of having a lung abscess this treatment should be instituted. If all patients with a significant history and physical findings were given this therapy at the outset few chronic abscesses would develop. In a previous paper[16] it was pointed out that the earliest physical signs of abscess are dullness to percussion, fine moist râles, and suppressed breath sounds. This is the ideal time for gravitational drainage, since the abscess walls are thin and resilient. As soon as rupture occurs, the cavity will tend to be more completely evacuated by postural means, the soft walls collapse and healing by fibrosis begun. Sante[17] cites a case of complete disappearance of inflammatory consolidation 3 days after rupture and evacuation of the abscessed cavity. Later, if untreated, increasing dullness, large moist râles, and harsh breath sounds were heard. These denoted a less yielding wall, in which evacuation by postural methods might be just as prompt but a collapse of the cavity less certain. Patients seen still later in the course of the disease without any treatment, often present flatness, bronchial or amphoric breathing, increased tactile fremitus and more rarely whispered pectoriliquy. When these signs are present a thick walled rigid cavity has formed. The beneficial effects of postural drainage is marked though not curative even in these patients. Partial or complete emptying of these cavities is accomplished, and the decrease in toxic absorption probably accounts for the marked improvement in these patients.

Thirty-six of the 101 patients were given general medical treatment including postural drainage. Of these 21 improved, 5 were unchanged, and 10 died. Improvement was accepted only in those patients that had a complete absence of all symptoms, a gain in weight and strength, no abnormal physical signs, and x-ray films showing healing by scar tissue. A betterment of symptoms with persistent physical signs, or vice-versa, unwillingness to remain in the hospital or slight to no change of the patient constituted the unchanged group. Duration of treatment was judged by average length of hospital stay. The improved group required 29.5 days, the unchanged 13.4, while those that died were in the hospital 16.4 days. Many patients in this entire group were considered too sick to be given any other form of treatment, but in spite of this the mortality for the group was 27.8%. (See Tables No. 1, 2, 3.) Funk[18] studied a series of 50 cases, 34 of whom received medical treatment alone with a mortality of 10%. Similar results were noted by Marietta,[12] while the surgically treated cases had an almost 50% mortality. Rest and postural drainage has been observed to be followed by good results in many cases.[19-20-21-22]

Bronchoscopic Aspirations. A second, slightly larger group of thirty-seven patients were given bronchoscopic aspirations in addition to the routine medical treatment. The Ear, Nose, and Throat Department of the hospital did all the bronchoscopic work using a modification of Jackson's technique.[23] I wish to thank Dr. Thomas C. Galloway, the chief of this service, for the kind attention and friendly interest he took in this work and for the numerous suggestions as well as the pleasant encouragement. This combined form of treatment gave more favorable results. Twenty-four cases were improved, five remained unchanged, and only eight died: a mortality of 21.6%. Treatment was carried out over a longer period of time (Tables 2 and 3). The improved class stayed 54.5 days, the fatalities 55.2 and the unchanged 37.8. One to 8 bronchoscopies were done, an average of 3. All except one of the unchanged class had a single aspiration. A single passage of the bronchoscope, as well as other things, seemed to be sufficient grounds for 4 patients to demand immediate release from the hospital. In both the improved and those who died, an equal number of aspiration were done.

Others have reported 50-79% recoveries following rest, posture, and bronchoscopy.[5-18 24-25]

Even more noticeable than the improvement in a number of this group was the striking betterment after a bronchoscopic aspiration. The records of 15 patients had notes of "better" and "much improved" after this procedure. This

is particularly significant in that it comes from different interns on the various services, in whom no special bias or prejudice can be supposed. A careful review of the clinical course and nursing records of these patients substantiates this statement. After histories of the group show that only two died. One died from an intermittent hemorrhage from an eroded branch of a pulmonary artery, the other complained of nausea, vomiting, and abdominal distention and the lung abscess was found only by physical examination. In this latter no post mortem was permitted and the exact cause of death undetermined.

Three patients were too sick to have repeated aspirations and were given only one. They were then given general medical care alone, but to no avail.

Surgical Treatment. A heterogenous group of procedures have been gathered under this head. Twenty-three patients in whom 30 operative procedures had been done were considered. Since there were 7 patients who had more than one operation, it was thought less confusing to evaluate each procedure rather than each history. By necessity we were forced to class first stage operations or phrenicotomies as improvements when they were followed by second operations. This was often not true, as the patient still had the disease and required a second operation. The figures are really a little more encouraging than those subjected to the more harsh arbitrary standards of the other two groups.

Phrenictomy was done on 8 patients and 6 improved. Two of the latter had to remain in the hospital about 40 days (See Tables 2 and 3). In the other 4 it was followed by a second operation viz., rib resection, thoracoplasty, and lobectomy. Two patients died after this nerve section, a mortality of 25%. Pneumothorax was attempted four times in a single patient in the hope of collapsing the middle right lobe cavity. On the third attempt the lung was collapsed and the patient improved slightly. However, one month later she developed a chill, cough, and fever and died 4 days after the last air injection. Thoracentesis, hardly a surgical procedure, was added to the list mainly to point out the grave dangers of a hasty exploratory puncture often done with an inadequate estimate of the real condition or its consequences. Ten patients were punctured, 4 improved, but the rest died. Two of the improved patients had "dry taps," another was followed by a rib resection, and small amounts of bloody fluid could be aspirated with difficulty in the fourth. Sixty per cent. of all patients (6) in whom thoracentesis was tried died. An average of 10.3 days elapsed between the operation and death. Less than 35 cc. of thick yellow pus could be aspirated in three cases. Spontaneous rupture of the abscess must have occurred in two men as 500-600 cc. of free pus was found in their pleural cavities.

A two stage thoracoplasty was tried in three men. A 26 year old white male had the operation more than 1½ years ago and is still well. Another patient recovered from the first stage and returned for the second stage three months later. He showed slight improvement after the second operation, but died within the next month. A third patient died immediately after the first stage operation.

Insertion of a drainage tube was so frequently associated with a rib resection that they are included under one head. Of the 7 patients treated by this method 3 improved while 4 died. An inch or more of the seventh rib in the midspinal line was removed in one case and a similar section taken from the 8th rib of patients who improved. A third case who improved had a resection of the 6-7 ribs, but he developed a bronchial fistula. An average of 24.3 days elapsed after the operations until the improved patients were allowed to go home. Two of the 4 patients who died had small sections of the 6-7-8th ribs removed. Another man had a small rubber drainage tube inserted which provoked a fatal bronchial fistula, while the fourth had an extensive resection of the 8-9-10th ribs.

No Treatment. Six of the 101 cases properly belonged to the group of untreated cases. An 11 day old infant was found very dyspneic in the nursery and a congenital heart lesion suspected. In a one month old child abdominal pains and distention were the cause of admission to the hospital. On physical examination a pneumonia was discovered and routine treatment instituted, but the infant died 4 days after entrance. Post mortem showed both cases to be lung abscesses: the first congenital, the second post-pneumonic in origin. Three cases who died 3, 4 and 11 days, respectively, after admission were proven at autopsy to be multiple abscesses.

All of them were included in this class as one had been treated as a pneumonia, the other a decompensated heart, and the last as a septicemia following an extensive resection of the left mandible. A white male aged 46 died of a severe pulmonary hemorrhage less than 10 hours after admission. At post mortem the diagnosis of lung abscess was established.

Table 1—Distrihution of Cases by Sex and Color

Sex	Improved	Same	Died	Total
White —Male	37	7	29	73
Female	5	2	3	10
Colored—Male	7	1	6	14
Female	2	..	2	4
Total	51	10	40	
Aggregate				101

Table 2—The Results of Various Types of Treatment

Treatment	Improved	Same	Died	Total	Mortality
1. General Medical	21	5	10	36	27.8%
2. Medical and Bronchoscopic	24	5	8	37	21.6%
Total 1 and 2	45	10	18	73	25.0%
3. Phrenicotomy	6	0	2	8	25.0%
4. Pneumothorax	0	0	1	1	100.0%
5. Thoracentesis	4	0	6	10	60.0%
6. Thoracoplasty	1	0	2	3	66.0%
7. Rib Resection (drainage tube)	3	0	4	7	57.0%
8. Lobectomy	0	0	1	1	100.0%
Total 3 to 8	14	0	16	30	53.4%

Table 3. Duration of treatment required by the different types, as judged by the total days spent in the hospital. The left-hand figure indicates the number of cases receiving that type of treatment, while the right-hand one the average length of hospital stay in days for the group. For example there were 21 cases who improved under general medical care, with an average stay of 29.5 days in the hospital.

	Improved		Same		Died	
1. General Medical	21	29.5	5	13.4	10	16.4
2. Bronchoscopic	24	54.5	5	37.8	8	55.2
Combined Medical	45	42.8	10	25.6	18	33.6
3. Phrenicotomy	6	30.1			2	31.5
4. Pneumothorax					1	4.0
5. Thoracentesis	4	14.5			6	10.3
6. Thoracoplasty	1	38.0			2	26.3
7. Rib Section	3	24.5			4	2.5
8. Lobectomy					1	4.0
Combined Surgical	14	25.0			16	12.2
9. Rejected—No R					6	5.7

SUMMARY

Cases of lung abscess are best treated by first considering the patient, then the abscess. All patients with non-tuberculous abscesses should have a high caloric vitamine full diet, sufficient fluids, plenty of fresh air, and an adequate postural drainage. A number of maneuvers and beds have been suggested to accomplish complete evacuation of pus from the cavity, but they seem to be of secondary importance. Drainage to be effective must be gravitational. This treatment is to be begun as soon as the diagnosis is made.

An ordinary "cold," pneumonia and oral operations are among the most common etiologic factors. Dullness to percussion, râles and decreased breath sounds constitute the earliest physical findings of a lung abscess. Those cases without a significant history and with uncertain physical signs can usually be diagnosed by weekly roentgenograms or bronchoscopic examination.

General medical care and good nursing such as could easily be given in the home of a patient will result in a very high percentage of cures. In this impartially selected group of 101 cases good medical care gave good results. Those cases in whom the diagnosis of lung abscess was made early and in whom treatment was begun at once had the shortest residence in the hospital and very favorable end-results. When this care was supplemented by bronchoscopic aspirations, better results followed. Delays in treatment, occasioned by uncertainty in diagnosis, decreased the incidence of cure by medical means, and favored the production of stiff walled chronic cavities. Thoracic surgery was done in about 30% of the cases, usually with less desirable consequences.

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DISCUSSION

Dr. F. M. Meixner, Peoria: I think Dr. Lueth's paper probably could cover much more ground if he had more time.

I think lung abscess is more frequent than we suspect, on account of the spontaneous cases that occur. I think that many cases diagnosed as influenza are probably misdiagnosed or are misleading on account of lack of chest findings when really they are small pulmonary abscesses. A treatise on treatment needs a word on prophylaxis. The time to treat these abscesses is before their appearance; 41% of these cases are due to a surgical procedure somewhere in the respiratory system. In infections of the upper tract, such as the teeth or gums, it is interesting that most abscess cases occur between the ages of forty and fifty. At that time you get middle age teeth trouble and tonsil trouble and sinus trouble, and I think there is a real relationship between these upper respiratory conditions and lung abscess. There is a definite lung finding in the hilus where the upper respiratory tract is subject to some lesion. If we remember to look in the upper respiratory tract for infection, we can use Dakin's solution or sodium perborate in order to help sterilize the tract or take care of the condition before subjecting the patient to surgery. We do not take out acute tonsils without proper preparation of the patient. During treatment, as Dr. Lueth has pointed out, the nourishment of the patient is very important. We formerly did not feed typhoid patients and they died from lack of food, but now we feed them. In these chronic infections the nourishment of the patient is perhaps the most important factor, and blood transfusions are very important to keep up the general strength. Vaccines are often thought of but may do no good in early cases and in late cases are probably of no value. Lipiodol has been used, but it is impossible to fill the cavity or irrigate it with any kind of solution.

In acute abscess there are two schools of thought: First, the surgeons who immediately think of bronchoscopic treatment; their theory is to open the abscess and get drainage. I think, following the theory of logic, you should treat it like any other surgical case; wait until a wall is formed around the abscess and then institute drainage. Incidentally, a diagnosis of the location of these abscesses, as Dr. Hedblom has said, is very hard to make. By means of fluoroscopy you can get a bilateral view in two planes so that you can put on a marker and take a picture and get a good localization of the abscess. This is necessary in order to know what position to put the patient in in order to get the best drainage. The location of the abscess will indicate as to the proper position for drainage and whether drainage will be satisfactory.

As to prognosis, in the early cases it is very good. In the abscess which has a hard, firm, fibrous wall and adherent pleura, I do not believe it is amenable to any form of treatment and that patient should be made as comfortable as possible and put on some kind of work where he may be happy and forget about the abscess. The gas gangrene type of abscess is fairly common. Serum, polyvalent or specific, is indicated in that type of abscess.

Dr. Lueth has given us a very good practical picture of this problem.

Dr. T. C. Galloway, Evanston: It is very gratifying to have Dr. Lueth's report since bronchoscopy in many of these cases was not undertaken with great optimism. This careful analysis shows very definitely that bronchoscopy is of considerable value in such patients. In any case bronchoscopic examination is of value as a diagnostic measure to rule out foreign body, mucus plugs and tumor.

I do not think the statement made in discussion is correct that one should not do early bronchoscopies. It is not a traumatizing procedure if gently done. By removing a plug or by aspiration one may get drainage before marked changes and get immediate restitution to normal. Bronchoscopy does seem of distinct value in removing plugs or thick secretion that the patient can not get rid of especially since the tussive squeeze brings these to the point where suction can remove them. Dilatation of a stenosed bronchus, occasionally irrigations and removal of granulations are bronchoscopic procedures that at times help much toward a cure.

Dr. Don C. Sutton, Chicago: The work of Dr. Lueth has been very painstakingly done. It points out clearly the fact that lung abscess can be taken care of in the home and that most lung abscesses are distinctly non-surgical.

THE SYMPTOMS AND DIAGNOSIS OF OBSCURE FEVER

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It is not easy to define just what we mean by "obscure fever." The word "obscure" is not used to describe the disease as insignificant, but to characterize the fever as not clearly comprehended; in other words, an "obscure fever" is one the cause of which has not been ascertained. The fever of sunstroke, pneumonia, protein shock, a thyrotoxic crisis, or of dinitrophenol, is due to the particular causative agent, which is obvious, not obscure. An "obscure fever" may be defined for the purposes of this discussion as a fever, the origin of which is unexplained.

This conception needs further qualification. Various reasons may exist for the failure to recognize the causation of a particular fever. This may be obscure because the particular form of infection responsible for the fever is an infrequent occurrence in the locality in which we meet it; for instance, few of us in our Northern States would quickly recognize a case of dengue. It may be that the course of a disease is atypical (as, for instance, is the case with chronic meningococcus septicemia which may run a fairly long course without the usual signs of meningitis, and is only determined by cultures from the blood). The nature of the infection may be obscure because of the short duration of the symptoms, or it may be obscure because, after weeks of observation, no characteristic symptoms, physical signs or laboratory results justify a diagnosis. It is with this group, continued fevers of undetermined origin, and the unrecognized cases of otherwise well known infections, that we will deal in this paper. Arbitrarily, only fevers of these two types, assumed to have been under careful observation, will be discussed here.

Another source of confusion arises from the frequent restriction of the terms "obscure fever" or "fevers of undetermined origin" exclusively to fevers which run a subfebrile course, a course characterized in the main by normal or nearly normal temperature, most of the time with rises perhaps to 100.5° once or twice a day. Lower maximum temperatures often occur. This discussion will include as "fevers of undetermined origin" the subfebrile type and those with higher temperatures, continued, remittent or intermittent.

It may be well to state briefly the definitions upon which this paper is based: "obscure fevers" are those in which the cause of the fever is undetermined;—this discussion pertains to fevers still "obscure" after two weeks of observation, whether the fever is slight or high, whether the symptoms are mild or severe.

One term must be defined, namely, fever. Wright accepts as the normal range of temperature 96.7° to 99° F. by mouth and 97.2° to 99.5° by rectum. He regards the rectal temperature as more reliable. Grafe apparently voices German opinion in his statement that the mouth is much more rarely used for the determination of the temperature than the rectum or the axilla. He regards the rectal temperature as most satisfactory, rejects the axillary method altogether and questions the accuracy of a temperature record obtained in the mouth. He accepts the normal rectal temperature as 99.5° F. Kintner and Rowntree, in a paper on "Long Continued, Low Grade, Idiopathic Fever" say, "We are of the opinion that in the adult a continuous mouth temperature of 99° or above represents fever, whether or not the patient is nervous. Furthermore, we feel that it is wiser to investigate patients with continuous low grade fever than it is to ignore the temperature or to explain it away." As a practical working basis this statement is satisfactory. A temperature of 99° F. by mouth may be accepted as evidence of fever and will be so regarded throughout this paper. Yet, as a significant comment upon the inevitable relativity of much that is here said, it may be added that most of us tacitly ignored mouth temperatures of 99.5° for instance, on several days last summer.

Yet one more "ghost must be laid"; if not finally, it may be considered and hereafter ignored. We know that exercise, excessive in character, will produce fever. It is also well known that in such diseases as tuberculosis and the late stages of typhoid, also during convalescence, there is a pronounced lability of body temperature. Discussion may be found in the literature as to the value of determinations of the temperature about the menstrual period and

Read before Joint Session of Section on Medicine and Section on Public Health and Hygiene. Illinois State Medical Society, May 21, 1935, at Rockford.

after exercise, as providing results which are useful in the diagnosis of tuberculosis. As the result of these and similar experiences there is much interest in the question as to the existence of nervous or psychogenic fever.

In a recent paper from Grafe, reference is made to the prevalent skepticism about purely nervous or psychogenic fever: he says, "Eichelberg first brought convincing proof, since he not only definitely proved clinically the presence of fever in hysteria, but also showed that this fever could be caused to recede by hypnotic methods and then reproduced even to a height of 39° C. (102° F.). These results have been confirmed by other investigators, one of whom (F. Deutsch) found it so frequently that he is inclined to differentiate an organic and a psychogenic factor in fever." The danger inherent in the acceptance of such an explanation for fever is forcefully expressed by Kintner and Rowntree: ". . . While it is true as will be shown, that a long-continued low grade fever is associated frequently with stigmas of neurosis, it will likewise be demonstrated that the fever persisted in still more individuals in whom no neurogenic basis could be found. It is obvious, of course, that the labeling of such fever as of neurogenic or psychogenic origin accomplishes nothing for either the patient or the physician, and serves on the other hand as a block to investigation and progress."

Practical and sensible as this statement from Kintner and Rowntree is, there still lingers some doubt as to its final validity, if we interpret it as disposing of the question of nervous fever. We know, for instance, that during convalescence from tuberculosis and typhoid there is a sensitiveness of heat regulation to both physical and emotional factors; undue exercise or an emotional upset, sometimes petty, are often followed by a rise of temperature. If the heat mechanism, hypersensitive because of a recent infection, may respond to an emotional upset with a rise of the temperature above normal, is it not conceivable that in certain persons with unstable nervous systems a similar rise of temperature might occur at periods of definite increase of the particular individual's response to nervous stimuli? In the last five years many cases of "obscure fever" have come under my observation. Many of these, the larger proportion, indeed, have occurred in young women. Statistics from our own work would be worthless, because nurses in training have made up a disproportionate number of the patients able to stay in the hospital through a long course of fever, yet the frequency of "obscure fever" in young women, often of nervous temperament, has been thought-provoking. Kintner and Rowntree report that two-thirds of the one hundred patients in their series were in the age group between 20 and 40 years, "whereas 38 per cent. of the clientele of the clinic fall between these ages. . . . Females constitute almost three-fourths of the entire group, 72 per cent. This is also out of keeping with the sex ratio of the clinic clientele, in which women present 54 per cent. In our opinion the relationship of a primarily hypersensitive nervous system to the development of the subfebrile type of obscure fever is a timely subject for study.

Leschke classifies the causes of fever thus:

"(a) Physical changes of the surroundings (overheating, interference with heat dissipation).

(b) Nervous stimulation of the heat center (the tuber cinereum and hypothalamic region).

(c) Chemical or physico-chemical substances, among which we can differentiate:

1. Substances which arise from the destruction of the body cells (aseptic and resorption fever).
2. Simple chemically constituted substances (sodium chloride, colloidal suspensions, protein split-products). (To this group we may add dinitrophenol).
3. Substances which arise from pathogenic microorganisms in an infected body."

While it is with the fever of infection that this paper is particularly concerned, it is not feasible to ignore other causes. One group includes the obscure fever which may occur in the course of advanced carcinoma, the purpuras, pernicious anemia, and the leukemias—diseases which cause destruction of the body cells or produce protein split-products. Banti's disease and Hodgkin's disease may provisionally be classified as developing fever due to infection. The fever of hyperthyroidism is probably due to increased heat production with relative "interference with

heat dissipation." While serum reactions with fever of short duration are well known, the contention of Rowe that "food sensitization may be responsible for intermittent or prolonged elevation of temperature" has not found general acceptance.

In fever the cardiac rate is increased, usually, but not invariably, in proportion to the height of the fever. The respiratory movements are increased in rate and depth. The metabolism is increased, upon the average, about 25 per cent. Protein metabolism is disproportionately increased, up to 50 to 140 per cent. Increased nitrogen excretion begins in the prodromal stage. The patient is undernourished and loses weight due to the rapid exhaustion of the glycogen and the impossibility of administering sufficiently rich nourishment to compensate for the increased metabolism in patients with fever and a poor appetite. High fever implies severe injury to the protein substances of the body, the effect of which can outlast the subsidence of the fever. The urine contains an increased amount of ammonia, creatinin and uric acid.

The digestive disturbances are numerous: dry, coated or fissured tongue, loss of appetite, diminished secretion of all the digestive glands, salivary, gastric, pancreatic and intestinal. The urine is diminished in quantity and is highly colored; the specific gravity is increased; febrile albuminuria is common. The number of blood platelets is usually increased. The leukocyte count is increased in many diseases but there are certain notable and well known exceptions. Anemia is not common except in severe or prolonged infections. The sedimentation rate of the red corpuscles is accelerated. The nervous symptoms vary from the headache of minor infections to the notable delirium of the patient with typhoid or the significant manifestations of central nervous disease seen in encephalitis and meningitis.

In keeping with our earlier observations, the symptoms of fever of undetermined origin may be presented under two headings:

1. The subfebrile, long-continued fever of unknown origin which is likely to run a prolonged course without at any time presenting features, symptomatic, clinical or laboratory, which warrant a definite diagnosis. This group is so characteristic that there might have been justification for confining our discussion to this type of "obscure fever."

2. The definite, well-developed fever, continuous, remittent, or intermittent, often high, with associated symptoms of variable severity; the picture is that of a serious infection. In this group, careful study usually results in accurate diagnosis, but not always. Unless there is opportunity for roentgenologic study miliary tuberculosis may not be discovered: periarteritis nodusa is rarely diagnosed during life; clinically it presents a cryptogenetic sepsis. Chronic meningococcic septicemia may run a long course before it manifests its true nature by meningeal symptoms or is revealed by a positive culture from the blood. On the other hand, some obscure fevers of this group are becoming less obscure as more thought of them is taken; undulant fever and tularemia are no longer overlooked as obscure fevers for weeks. Such conditions as actinomycosis, leptothrix and streptothrix infections and rat-bite fever are still "obscure" to most of us, because we forget them. A discussion of "obscure fevers" must include the subfebrile group and the group of high fevers with more prominent symptoms.

The symptoms of the mild or subfebrile type are not marked. Often these are related to an ordinary "cold" or sore throat, perhaps a bronchitis, subsequent to which the patient improves from the more acute symptoms yet fails to regain former good health. A moderate or slight cough may persist. A prominent symptom is a lack of the patient's usual vigor; there is a disinclination to exertion, mental or physical, the patient tires easily and complains of a constant sense of fatigue. The appetite may be impaired but often the patient will eat well, particularly after a few days' rest in bed has relieved the constant weariness. A mild headache may be present. Mild insomnia is fairly frequent. Constipation is common; diarrhea so uncommon that its presence calls for special attention. Vague muscular pains are often present. Joint pains suggest that the infection is rheumatic. The urine may show a trace of albumin. A moderate leukocytosis, 10,000 to 15,000, is often present, although the leukocyte count is not infrequently within normal range. An anemia is apt to be present if the fever has existed for some time.

A systolic murmur at the base of the heart is common; this type of fever is common in young women in whom such murmurs are frequently found in health. The presence of a systolic murmur at the apex or over the precordium, especially if this develops under observation and is associated with a definite accentuation of the second pulmonic sound, supports the diagnosis of mitral endocarditis. Occasionally there are tender cervical glands.

During the past three years, eight nurses in training at the Evanston Hospital have been under observation at the hospital because of persistent fever, through single periods varying from 36 to 109 days; the average duration of hospital residence was 65 days. In one case a diagnosis of recurrent acute endocarditis was accepted. The other patients were discharged with the diagnosis of "fever of undetermined origin." The temperature at entrance varied from 100° to 100.4°. Malaise, headache, anorexia, general muscular aching, slight cough, were the common complaints. The leukocyte counts varied from 5,500 to 16,000. One patient had an initial influenza during an epidemic, one had pain almost suggestive of a left pyelitis, which was not confirmed, and one had pain in the left chest without physical findings, for one day. Urine examinations were numerous; occasionally a faint trace of albumin was found; in no case did the findings warrant the diagnosis of infection of the urinary tract. Significant anemia was not discovered; in one case, one count of two showed a red count of 3,960,000; in the group, many other counts varied from 4,050,000 to 4,900,000. One patient was allowed to leave the hospital while still febrile; the others were afebrile from ten to twenty-four days before discharge. Within two years, one of the patients in this group was a patient in the hospital five times; three were patients four times each, and one three times. One patient, upon the basis of changes in the electrocardiogram, was regarded as having an acute myocarditis. While we believe that our evidence justified this diagnosis, the relationship of myocarditis to fever is not sufficiently shown to warrant us in dogmatically offering thus to explain the fever in this case.

One case from this group may be cited as illustrative: A young woman of 20, a nurse in training, was admitted to the hospital with fever and general malaise of four days' duration. She had noticed a slight cough for two months; this was associated with a steady pain over the left lower chest anteriorly, which was aggravated by deep breathing and lying on her side. She has always had severe constipation and has been subject to attacks of migraine. She had scarlet fever at 7, and had rheumatism of the left wrist within the same year. Tonsillectomy was done, and she had no further rheumatism; she was also relieved of sore throats. At 15, she had two attacks of influenza, three or four months apart, associated with general malaise, fever, cough and night sweats. Upon admission the blood pressure was 135/80. A systolic murmur was heard at the base of the heart. The urine was negative. The blood count was normal. The sedimentation time was normal. Throat cultures were negative for streptococci. Blood cultures for the typhoid and melitensis groups were negative. Roentgenological study of the chest, sinuses and gastrointestinal tract was negative. The electrocardiogram was normal; the rate was 100. Pelvic examination was negative. Ears, nose and throat showed no evidence of disease. The Wassermann was negative. The Mantoux test was negative. For a few days she had some migratory pains in the elbows and wrists. X-ray films of the teeth were normal. An intravenous urogram was negative. During her stay of ten weeks in the hospital her temperature was occasionally normal, but never for more than two days in succession. After her discharge she stayed at home for two months; the temperature curve remained the same. After six months she returned to work, but the temperature, though somewhat lower, was still slightly above normal almost every day. Finally she gave up her work. This patient offered, upon the basis of her history, the possibilities of cardiac and pulmonary disease, but a diagnosis of disease of either heart or lungs is not admissible. Some of the more technical diagnostic procedures noted were employed because of specific complaints on the part of the patient.

In addition, may we cite two cases from private practice: A woman, now 45, was known twelve years ago to have mitral regurgitation and hypertension. She also had frequent attacks of tonsillitis. Since 1927 she has had a daily rise of temperature to 99.4° or 99.6°, almost constantly, although she was kept in bed over three long periods, for more than two years. In 1930 she developed gallstone colic for which she submitted to operation, principally because she hoped that the removal of the gallbladder would free her of the fever. She is relieved of the pain due to gallstones but the fever persists. In 1928, 1929, and 1930, repeated blood cultures were negative. She has never had petechiae nor emboli; there has been no extension of the cardiac disease to other valves. In spite of eight years of almost constant fever, the evidences of mitral endocarditis are no more significant now than they were in 1923. Is it permissible to attribute her mild infection as shown by continual fever and a moderate leukocytosis to a simple acute endocarditis of at least eight years' standing?

In January of 1933, a young woman was seen who complained of malaise and general ill-feeling; she knew

that she had an afternoon rise of temperature up to 99.6° or 99.8°. She complained of pain in the chest, but had no cough. In the office her temperature was normal, the hemoglobin 92 per cent. erythrocytes 4,520,000, and leukocytes 6,000. The urine was normal. Physical examination was entirely negative. Some ten years previously she had had a pyelitis but this had cleared up promptly. No remission occurred. Stereoscopic plate of the chest was negative. She was kept in bed under observation for some time. Five months later she was seen at another hospital and here urological examination was done. The urinary tract was normal. The examination revealed no evidence of disease. Blood culture was negative. Blood counts again were normal. She was discharged with a diagnosis of "post-infectious debility." She continued to have fever for about a year in all. No diagnosis was made. She has now been free of fever for more than a year. This case of "obscure fever" was undiagnosed.

Kintner and Rowntree found that the patients in their series of 100 cases of "long-continued, low-grade, idiopathic fever" varied in age from 15 to 69. Females made up 72% of the group. In 65% of the patients, despite the prolonged fever, the patients looked healthy. Fever was known to have existed from one month to eleven years prior to registration. After discharge, the fever subsided in one month to six years, in 55 cases; 38 patients continue to have fever and 7 are dead. Of the total group, 87% complained of exhaustion, 50% of nervousness, and 38% of loss of weight; these were the three most common symptoms. "Tuberculosis had been diagnosed in 26 instances. In no case had the bacillus of tuberculosis been demonstrated. Four of the group had had diagnoses of Hodgkin's disease, gallbladder disease, salpingitis, and Addison's disease, none of which were confirmed here or elsewhere. Fourteen others had various unconfirmed diagnoses, while twenty-one had previously been told that no cause for the fever was apparent." Removal of foci of infection was advised in 35 cases and followed out in all. Fever subsided in 60% of these. In the 50 cases in which no foci were found or removed, the fever subsided spontaneously in 59%. There was no difference in the subsidence of fever in the two groups.

Alt and Barker reported upon "the subsequent course of 173 patients discharged from the Peter Bent Brigham Hospital with a diagnosis of fever of unknown origin." This group included patients who were discharged "after painstaking clinical and bacteriological investigation" had failed to justify a diagnosis. Queries were answered by 101 of this group of 173; 42 had fever of less than ten days' duration. Of the 59 who had fever of more than ten days' duration, 18 had been discharged from the hospital, afebrile; of these, after some years, 15 were well. Of 18 who were discharged while still having fever after ten weeks, two had continuation of fever and five had died, six weeks to four years after discharge. There were 23 in whom an ultimate diagnosis was established; 6 eventually developed demonstrable tuberculosis, 4 developed definite signs of chronic rheumatic fever; 3 died of carcinoma (all within three years); 2 died of lymphoblastoma; 1 died after thyroidectomy; 1 died after appendectomy. One continued to have occasional chills with fever for six years, which stopped after the discovery of a positive Wassermann test was followed by appropriate treatment. The last case was that of a woman with a breast abscess which was still draining; her fever stopped after she was given quinine for a malaria which was long overlooked.

It has been pointed out that the term "obscure fever" includes another type of case, characterized by higher temperatures and more serious symptoms, which, in most cases, eventually develop in such a way that accurate diagnosis is possible. A case in point is that of a woman of 42 who was recently admitted to the Evanston Hospital after two weeks' illness at home. The history was brief: she was taken suddenly ill with severe pain high in the epigastrium shortly after she had eaten a late and perhaps injudicious meal. Thereafter the pain persisted and was associated with tenderness and moderate rigidity to the left of the midline in the small area between the midline and the costal margin, a little below the ensiform. The appetite was good, the bowels regular, there was no vomiting. The chest was negative; this was confirmed by two sets of x-ray plates; no evidence was found of involvement of the heart, lungs, thoracic glands or thoracic cage. One finding of importance, and only one, appeared upon roentgenological examination—there was some impairment of the movement of the left diaphragm toward the midline. The temperature ranged from 99° to 100°. There was a persistent leukocytosis, as high as 21,000. Otherwise there were neither symptoms nor signs of disease. The patient improved slowly but demonstrably for about ten days; the tenderness and pain were much less marked, the fever subsided to a daily high level of 99.6°, the leukocyte count was below 15,000, once as low as 9,600. Then for no apparent cause the symptoms were aggravated, the pain and tenderness significantly worse, the temperature rose to 102°, the leukocytosis was again over 20,000. Almost five weeks after the initial pain, the abdomen was opened for an exploratory procedure, the general impression about the diagnosis being that a perigastric abscess following the rupture of a silent ulcer near the opening of the esophagus would be found. A solitary abscess in the left lobe of the liver was opened and drained. The patient had been singularly free from bowel disturbances; there was no history suggestive of dysentery. The pus was not like that from an amebic abscess. Amebae were not found prior to the operation in the stools; after the operation the stools were free of amebae; none were found in the pus.

It is cases of this type that make up a large part of the cases of "obscure fever" with well-defined symptoms of infection. All of us have wrestled with instances of "cryptogenic sepsis" sometimes for weeks; not infrequently has the diagnosis been revealed, for the first time, at autopsy. I recall a case of sepsis in a physician

following a crop of boils; at least a month passed before this fever of undetermined origin was found to be dependent upon a perinephritic abscess. In another physician, an older man with a rheumatic heart disease of twenty years standing, there was persistent fever following a suppurative inflammation of the left ankle. The latter was drained and was practically healed; for six weeks we were unable to determine the diagnosis; then the symptoms of an acute inflammatory process within the abdomen indicated operation, which revealed a mesenteric thrombosis. The diagnosis of recurrent endocarditis with thrombo-ulcerative processes was confirmed anatomically.

Sepsis of various types is responsible for many fevers of undetermined origin. This may be localized, sub-diaphragmatic, hepatic, perinephritis, or intraabdominal abscesses elsewhere may be responsible for septic fever. All of us have followed some such cases through trying experiences. Twice, osteomyelitis of the spine, with local abscess formation, has come under my observation: once this was diagnosed clinically; in the second case the clinical diagnosis referred the disease to the kidney. Multiple small abscesses of the lung, primary after a severe pneumonia, especially of the type known as streptococcic bronchopneumonia, or secondary to a focus elewhere, may be overlooked. Periarteritis nodosa is a general sepsis which thus far has been correctly diagnosed during life infrequently. A purulent pericarditis may follow a pulmonary infection, pneumococcic or streptococcic, and cause great difficulty in diagnosis, especially if opportunities for radiological studies are not present. Chronic meningococcus septicemia has been mentioned.

A second group of obscure fevers with high temperature and courses of severe type is obscure because the disease is not sufficiently well known, or the physician fails to think of it. Undulant fever, a novelty to all of us only six or seven years ago, is easily diagnosed if we think of it and employ specific serological tests. Tularemia is recognized much more frequently than was the case ten years ago. Rat-bite fever, infrequent as it is in this part of the world, ought to be easily recognized if it is only kept in mind. Miliary tuberculosis is too often forgotten as a possible diagnosis. Even malaria fails of recognition now and then because of our failure to examine the blood. Typhoid of unusual course may be deceptive. The diagnosis of hepatic suppuration is notoriously difficult.

The task of diagnosis is to describe the anatomical changes underlying the fever of undetermined origin and to discover the infection or other causative factor which has been responsible for the pathologic processes. Often enough, only one of these implied questions is answerable. If we discover fever associated with leukemia or Hodgkin's disease or advanced carcinoma, we are content to explain the fever upon the anatomical basis; we accept the obvious disease as the explanation for the fever, since we are ignorant of the etiological factors behind the diseases mentioned. If, in the course of an unexplained fever, we find a positive serological test for typhoid, and demonstrate typhoid bacilli in the stools or urine, we are content with such anatomical evidence of typhoid as the low leukocyte count and a palpable spleen. The clinical course of a fever like a mild typhoid, without positive serological reactions, suggests undulant fever; serological and bacteriological study will confirm the diagnosis. In rheumatic endocarditis, on the other hand, the bacteriological evidence is subordinate to the clinical. The development of a characteristic murmur in the course of the fever, the occasional arthritis, perhaps only involving one or two joints, the history of susceptibility to acute tonsillitis, permit a diagnosis, if not certain, at least highly probable. Tuberculosis presents a similar problem: the anatomical changes revealed by physical examination and the x-ray are not diagnostic of active tuberculosis; loss of weight and strength are not diagnostic; even the presence of tubercle bacilli in the sputum is not conclusive proof of active tuberculosis. The diagnosis of acute endocarditis or of active tuberculosis is largely dependent upon the presence of fever such as we have herein discussed in association with other findings. Many forms of localized sepsis present the problem of discovering a localized infection amenable to surgical treatment. Blood cultures, serological tests and leukocyte counts, the height and type of the fever, the secondary symptoms, chills, sweats, tachycardia and albuminuria, may

reveal the type of the infection and its manifestations, but the disease remains "obscure" "undetermined" until the situation of the infection is discovered.

Toward this practical end, the attainment of a correct diagnosis, our efforts must be turned. Whatever means are at our disposal should be used, as indicated. It is not advisable to subject these patients to a medley of procedures in an irresponsible way, yet we should add to the routine complete examination, other diagnostic procedures as they are indicated. No reasonable method of examination should be omitted, yet it may be said, with even greater emphasis, it is better to take some things for granted than to so harass and upset a patient as to promote fever through pain and fear.

The common cause of "obscure fever" are tuberculosis and sepsis; the sepsis may be due to any of the organisms known to produce inflammatory processes. Tuberculosis as the cause of such fever may be active in the lungs, lymphatic glands, intestinal tract, serous membranes, genitals or the kidneys. Acute endocarditis and pyelitis are the most common manifestations of non-specific forms of sepsis, but sepsis of this type may be found localized in various situations within the body, or generalized, without a demonstrable local focus, in the blood. And various conditions other than sepsis or tuberculosis, already mentioned, may cause fever of undetermined origin through weeks and months.

It is not acceptable to attribute fevers of this sort to some old focus of infection, quiescent in character. Ascription of the symptoms to such a focus is more likely to mislead them to clarify; a false sense of security as to diagnosis may lead to disregard of important developments in the course of the disease. The removal of so-called foci of infection under the conditions herein described is unlikely to serve a useful purpose. The procedure may be responsible for aggravation of the disease; it is of questionable service at the best; at the worst, it may make the patient significantly worse.

It does appear that the age of the patient is of importance in the determination of the diagnosis. In older people the cause of the fever is more likely to be discovered; in the young, especially in young adults, subfebrile fever is most common and most likely to remain obscure. The prognosis is better in the young group; here the ultimate disclosure of serious disease is unlikely. A similar course of fever in older individuals demands greater reserve about the prognosis.

Finally, the diagnosis must be adequate. It must answer the principal problems of the particular case, without presenting other unsolved problems, or taking too much for granted. Even with complete examinations we may be tempted to error through false leads, following which a diagnosis is made, accepted and henceforth retained, upon insufficient evidence. Diagnosis should be reserved for the support of convincing evidence. Until such evidence is at hand, we need to avoid final conclusions. For all of us, once a diagnosis is made, are in danger of closing our minds. In the presence of some definite finding we may err in attributing final importance to some fact which we can grasp. In the last analysis, the diagnosis of "obscure fever" requires good clinical judgment, and for many of the cases here described, especially of the subfebrile group, the diagnosis of "obscure fever" must be accepted as the final description.

DISCUSSION

Dr. Frank Deneen, Bloomington: Dr. Carr's paper shows a lot of intensive study of types of cases which so frequently give us no results whatever. I think the best way to approach any case of fever is with the idea that you don't know what it is, and then gradually work out the case and see if you can't reach a conclusion. Dr. Carr has taken the stand that at least two weeks' observation of temperature above 99 is necessary before the fever can be included in this group.

He spoke of the psychogenic type. I recently had a man, whom I had studied for several years previous on different occasions, in which he ran an intermittent temperature. When it goes up I put him to bed and the temperature remains normal and he feels good. He gets back up again and his temperature is around 99 and a fraction. He says his skin feels hot, that he is weak and it makes him very nervous. I put him back to bed and the temperature returns to normal.

Last year I had three cases of Rocky Mountain fever. Apparently the Public Health Service does not quite agree with the classification of these fevers. One of them looked like a typical Rocky Mountain type; the other two, what some men call the Eastern spotted fever. But, in corresponding with the health department in Hamilton, Montana, Dr. Parker stated that he thought all three were Rocky Mountain fever. The first case didn't develop the eruptions for almost three weeks after the development of the temperature. The other two in the course of a few days developed the typical centripetal eruption.

One thing we must remember about malaria. Any time a patient has had malaria, as in other types of

protozoan infestation, they remain latent over long periods of time. These recurrent cases years after the initial attacks do not run a typical course. The recognition of the plasmodium in the stained specimen or the fresh specimen of the blood is very difficult, but your quinine is a specific and should be given. The patient is entitled to that.

There are often times in which the physical findings are all negative except tenderness over the gall bladder. Sometimes the tenderness is more easily found in the upright position. I think these cases are entitled to the benefit of the doubt that the gallbladder might be the causative factor and should be given the dye and medical drainage. This procedure will clear up a large number of cases of obscure fever.

In sinus conditions we should not accept the report of the nose and throat man that there is nothing in the sinus but every one of them should have an x-ray picture. I think you will find frequently pus collections in the antrum, without associated pain or tenderness.

Undulant fever, of course, has been touched upon by men who know so much more about it than I do, but I will state that in a couple of cases the agglutination test did not come back positive with every specimen sent. The fact that you do not get a positive report on your blood where you suspect undulant fever, does not mean anything, and so do not hesitate to have that repeated several times.

I want to say that I enjoyed all the papers in this symposium and believe they should stimulate all of us to continue the study of these unknown fevers.

EPIDEMIOLOGY OF OBSCURE FEVERS

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A discussion of the epidemiology of fevers, or of obscure fevers, to which the subject has now been limited, at once harks back to the diagnosis of the cause of the condition. It would be futile to consider the epidemiology of fevers, or attempt to take preventive measures against their spread without determining their specific cause.

Nevertheless, the existence of fever of obscure origin in a series or group of similar cases in any locality immediately presents an epidemiologic problem.

Fever in common types of infection: In extensive local outbreaks of measles, whooping cough or typhoid fever, the early recognition of fever in the development of new cases of these diseases is of distinct value in their epidemiologic control.

Read before Joint Session of Sections on Public Health, Hygiene and Medicine. Illinois State Medical Society, May 21, 1935, at Rockford.

Epidemiologic experience shows that measles infection cannot be prevented in schools, if developing cases of the disease are not excluded, until the Koplik spots are observed.

If new cases are to be excluded in their earliest stage of infectivity, then this must be done when they present the first evidences of fever. This often antedates the appearance of the Koplik spots from 24 to 36 hours.

During an epidemic of measles in Springfield, Illinois, in the spring of 1934, in which 1,450 cases of the disease occurred among approximately 12,000 elementary school children, all children with catarrhal symptoms and/or fever were excluded from the schools in which the disease was prevalent. A total of 192 children were thus excluded on account of fever and the majority of these developed measles outside of the school room.

Similarly, the early recognition of fever will aid in suspecting cases of whooping cough and typhoid fever in outbreaks of these diseases.

Epidemiology of less common fevers: Under this heading attention must be given especially to undulant fever and tularemia on account of the widespread sources of infection, in this country, for these maladies.

Undulant Fever: The following well established facts in regard to the etiology of undulant fever are important in the epidemiology of this disease.

1. The disease, now known generically as Brucellosis in man and animals is caused by at least one of three varieties of the Brucella group of organisms. The melitensis variety (Bruce 1887) is the cause of the disease in goats, the abortus variety (Bang 1897) is most commonly the cause in cattle and the suis variety (Traum 1914) in swine. Interchangeability of hosts occurs with all varieties of the organism.

Other animals such as the horse, mule, sheep, dog, cat, rabbit, guinea pig and rat are susceptible to infection. The infection has also been produced in poultry.

Man is suspectible to infection by any of these three, but least to the abortus or bovine variety.

2. Brucellosis is widespread in cattle and hogs in this country. Recent statistical summaries made by Starr[1] and Giltner[2] show the occurrence of Brucella agglutinins in the sera of cattle in various states of the U. S. ranging from

10 to 90%. Cotton[3] says that the proportion of infected herds in some localities may exceed 50% and the number of reacting cattle in such herds may average about 20%. Starr[4] in summarizing the investigations made to determine Brucella agglutinin reactions in swine, in various parts of the U. S. and Canada, found from 10 to 20%, while in significant titers of 1 to 100 or over, the percentage ranged from 1 to 3%. The highest percentages were found in the Middle West and notably in Iowa as reported by Hardy and Associates[5]. They found 18% of 611 hogs tested positive and 16% doubtful (66% negative).

In the U. S. Brucellosis of caprine origin has occurred as a result of the importation of infected goats. It is a potential menace in the southwestern states, along the Rio Grande. Watkins and Lake[6] found 19% of 115 goats in Phoenix, Arizona, positive reactors to the agglutination test and responsible for 5 human cases of Malta fever in that city in 1922.

At the present time the goat is not considered a serious reservoir of the disease in this country.

3. Animals may harbor the infection without showing any symptoms of the disease. This is especially true of goats. In cattle the disease manifests itself as infectious abortion. The general health of cattle found suffering from this disease is usually not impaired and death seldom results. In addition to the loss of calves there may be impairment of milk flow, associated with disease of the udder. The manifestation of the disease in hogs is similar to that in cattle.

4. The Brucella group of organisms has an affinity for the uterus, embryonic tissues and the udder. The organism occurs in the uterine discharges in large numbers at the time of abortion. Aborted fetuses and placental tissues are a common source of infection for swine.

The udder and regional lymph glands are usually involved in the infection and the organisms appear regularly in the milk.

5. The infection in man and animals is readily recognized by means of the agglutination test. Most observers do not consider this test significant unless it occurs in titers of 1:100 or greater.

6. The fact that the Brucella group of organisms are readily killed by the temperatures required to be employed in the pasteurization of milk is of great epidemiologic importance.

7. Interhuman transmission of undulant fever is a negligible factor in the spread of the disease.

8. The common source of infection in humans is raw milk from infected animals. Infection with the porcine variety usually occurs through cutaneous abrasions.

9. The period of incubation in man is from two to three weeks. Laboratory and experimental infections occur in shorter time, usually in from 5 to 7 days, probably on account of more massive infection.

The occurrence of a case or a series of clinical cases of undulant fever verified by serological tests warrants the following epidemiologic investigations:

1. The extent of the outbreak: An isolated case always presents difficult problems in tracing the source of the infection, especially when exposed to several chances of infection. Thorough investigations of the sources of infection can only be made if all the cases of the disease in the community are found and recognized.

2. Classes of persons involved: Classes is here used in a broad sense and includes classifications as to age, sex, color, occupation and any others that may have a bearing in a given community.

3. Residence: This is very important in the investigation of isolated cases in view of the fact that the infection may have occurred elsewhere in non-residents, travelers or vacationists.

4. Food and milk supply: In this connection, the occasional sources of supply, including restaurants, should not be overlooked. Where it is claimed that only pasteurized milk has been consumed, it may be well to check on the efficiency of the pasteurizing plant from which the milk was obtained and also the possibility of infection from other unpasteurized dairy products.

5. Contact with human carriers: This is not an important factor according to our present knowledge of the transmission of the disease.

6. Reservoirs of infection: Due to work of the states, the U. S. Bureau of Animal Industry and the U. S. Livestock Sanitary Association, the presence of Brucella infection in cattle, swine and goats in the various localities in the United States is being definitely established. (Dr. John J. McShane, Chief of the Division of Communicable Disease of the State Department of Health,

in his discussion of this series of papers will present figures in regard to the prevalence of this disease in Illinois.)

In considering the animal reservoirs of infection, the fact that certain herds are certified as free from infection and that efficient pasteurization destroys the various types of Brucella organisms must be kept in mind.

There is another factor in the epidemiology of undulant fever, in regard to which there has been much difference of opinion. That is the susceptibility of man to infection with the bovine variety of the Brucella group of organisms.

When one considers the great reservoir of infection for this type of Brucellosis, namely, 20% of the cattle in 50% of the dairy herds and contrasts it with the relatively small number of cases of undulant fever reported to the U. S. Public Service annually, 1,659 in 1933, it is evident that man is either not very susceptible to this type of infection or else that the infection is not generally recognized.

There are no data available showing the source or manner of infection of the sum total of cases reported annually. From a general knowledge of the factors, as determined by numerous local intensive surveys, it may be assumed that this total number of cases, includes a certain proportion due to the porcine variety of Brucella infection and that in addition to milk infected cases, there were contact infections such as have been observed in veterinarians, butchers, abatoir workers, stock raisers and farmers.

In the Iowa series of cases reported by Hardy and Associates,[7] 209 showed contact with livestock or carcasses and 125 no such contact.

Another fact, that has been generally observed which may be considered as evidence against great susceptibility of milk infection is the preponderance of adults over children in undulant fever cases reported in view of the fact that children are the greatest consumers of milk. This observation may not be as important as it seems for Brucellosis in animals is essentially an affliction occurring during their period of maturity. The same is apparently true in regard to man.

Starr,[8] after reviewing all of the literature on the subject of human susceptibility to milk infection with Brucella organisms and citing instance after instance where this was proved without a question of doubt, shows definitely that such infections are found wherever carefully investigated.

From an observation of 70 cases in his own State of Virginia he concludes "that undulant fever in man is not statistically impressive as a medical or public health problem. On the other hand, viewed from the standpoint of the individual who has suffered from the disease and who has been incapacitated for weeks or even months, the disease is of great importance." This conclusion may well be applied generally.

Tularemia: The following facts regarding the etiology of tularemia are of epidemiologic importance:

1. Tularemia is an infectious disease caused by the bacterium tularense (McCoy, 1911).

2. Primarily it occurs as a fatal bacteremia of wild rodents, especially rabbits and hares. It has also been found in ground squirrels, woodchucks, opossums, muskrats, coyotes, wild rats and mice. When such animals are found sick or dead in the fields in areas where the disease is known to be prevalent, they should be considered as potential sources of infection.

3. Domestic rabbits, raised in rabbitries, have not been found naturally infected.

4. Guinea pigs are readily inoculated. This procedure can be used as a means for obtaining pure cultures of the causative organism.

5. Blood sucking insects, such as lice, flies and ticks are believed to transmit the infection from rabbit to rabbit in nature and are known to be capable of conveying the disease to man.

6. The most common modes of infection in man are through abrasions on the hands or introduction of infected material into the conjunctival sac. Dogs and cats may carry the contamination on their mouths.

7. Instances of infection from man to man are extremely rare.

8. The period of incubation in man varies from about two to twenty-one days and averages about four days.

9. The blood serum from a case of the disease in man or animals gives a characteristic agglutination test.

In the epidemiologic investigation of cases or outbreaks of tularemia the general procedure should be practically the same as outlined for undulant fever, except that other probable sources and modes of infection would have to be considered.

McShane[9] in his discussion of this series of papers will report the sources of infection in the clinical types of the disease. His observations are based on the following number of cases:

1. Ulceroglandular type—384 cases.
2. Oculoglandular type—7 cases.
3. Typhoid type—11 cases.

Malaria: In concluding the discussion of the epidemiology of the obscure fever, a few words must be said about malaria. Until 1878, Malta fever went under the name of remittent malarial fever. There are certain similarities in the fever manifested by these two diseases. This makes it imperative that a laboratory diagnosis be made and the disease specifically recognized before epidemiological investigations are inaugurated in febrile conditions of this kind.

Fever in other communicable diseases: While fever is a more or less constant symptom even in the early stages of such diseases as epidemic cerebrospinal meningitis, epidemic meningitis and acute anterior-poliomyelitis, it *per se* has no significance in the epidemiologic investigation of these diseases. These diseases, unlike measles, never occur in sufficient numbers at a given time, in a community, so that fever, unaccompanied by other pathognomonic signs and symptoms can be utilized in suspecting such infections.

In tuberculosis of the open types, afternoon fever on successive days serves epidemiologically as a sign of activity and infectivity. The significance of this, in the spread of this disease in the home and school room, are too well known to warrant any further discussion.

DISCUSSION

Dr. J. J. McShane, Springfield: Dr. Koehler mentioned in his paper that I would discuss statistics relating to undulant fever and tularemia in Illinois.

The first case of tularemia reported in Illinois was in 1926. This case was reported by Dr. Tom Kirkwood of Lawrenceville and since that time, approximately 125 cases are reported yearly. For the five-year period, 1930-1934, seven hundred and eleven cases were reported in Illinois. Twenty-one counties did not report a single case for this five-year period, all of these being located in the northern part of the state, with the exception of two counties, one of which was in the central and the other in the extreme southern part of the state.

Of the total of 711 cases, 217 occurred in the northern half of the state and 494 in the southern half. Ten southern counties reported approximately half of the cases during this period. Of the 217 cases reported in northern Illinois, 97 were reported from Cook County, which included 74 from Chicago, giving a total of 120 cases in the other northern counties as compared with 494 in the southern counties.

We find in studying 418 downstate case histories that 215 occurred in males and 161 in females. The oldest case was 74 years of age and the youngest eight. The average age for the five-year period was 36.9. Three hundred and sixty-two were found to have obtained their source of infection from rabbits; three from dressing squirrels; one bitten by pet squirrels; four from opossums; two bitten by ticks, one on neck and one on hand.

Three hundred and eighty-four were of the ulceroglandular type, seven occulo-glandular, eleven typhoidal, thirty-eight no history.

TULAREMIA

Year	Cases	Deaths
1930	140	2
1931	129	4
1932	134	4
1933	174	9
1934	134	11
	711	30

Examination of figures representing the monthly total of cases reported for the past five years, shows that in Illinois, the tularemia season and the rabbit season are the same. The annual rise and prevalence begins about the first of November and the most marked fall occurs in February. The peak of the wave is usually reached in December with January second in importance from the standpoint of prevalence.

The first cases of undulant fever were reported in 1927. Five cases were reported for that year, 1 for 1928 and 37 for 1929. During the five-year period, 1930-1934, four hundred and fifty-four cases were reported in Illinois. Twenty-seven counties did not report a single case for this five-year period, all of these counties being located in the southern part of the state, with the exception of two counties, which were located in the northern part. This is directly opposite of the tularemia distribution.

UNDULANT FEVER

Year	Cases	Deaths
1930	63	6
1931	124	7
1932	72	5
1933	94	2
1934	101	5
	454	25

During this five-year period, 375 cases occurred in the northern half of the state. Sixty-eight of these cases occurred in Cook County, which included 60 from Chicago, leaving a total of 307 reported in the other counties in the northern one-half of the state. For the corresponding period, 78 cases were reported in the southern half of the state.

From a three-year study of 226 downstate case histories, we find that the youngest case was reported in a baby girl, one year of age, and the oldest was in a 55-year-old male. It was noted that 63.1% of the cases reported were males and 32.9% females; 4% the ages were not given. Thirty-six males and 40 females drank milk but did not come in contact with animals.

Fifty-nine males and 4 females drank milk and also had direct contact with animals. It is impossible to determine whether these persons obtained the disease from drinking milk or from direct animal contact. Twenty-eight males and no females were found to have had direct animal contact only—not drinking any milk. In the histories of thirty-seven males and 23 females, the source of infection was undetermined.

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LABORATORY AIDS IN THE DIAGNOSIS OF FEVERS OF OBSCURE ORIGIN

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The balance between heat production and heat loss through skin and respiratory surfaces may be disturbed by a variety of causes. Infection is one of the commonest causes of disturbed metabolism leading to rise of body temperature. We will consider those infections giving rise to continued fevers in which the signs and symptoms are frequently indefinite and yet in which bacteriological and serological tests are often of great assistance to the diagnostician.

Centralized laboratories, such as those operated by the State Department of Public Health, cannot offer tests or services which require the presence of the patient in the laboratory. They can, however, be of assistance by examining a great variety of secretions and other materials which the doctor collects from his patients and submits to these laboratories.

Several diseases, such as meningitis, influenza, syphilis, gonorrhea, acute arthritis, and trichiniasis give rise to fevers lasting two weeks or longer, but there are usually some characteristic signs to direct attention to the cause of the fever. Tuberculosis, sepsis and typhoid fever contribute the greatest number of cases of continued fevers.

When typhoid fever is atypical, with an absence of the classical signs, and no suggestive history, it is a real diagnostic puzzle until laboratory tests are performed. In addition to the typhoid bacillus, other related microorganisms produce similar enteric fevers. Aberrant forms of disease are likely to be more frequent when these related bacteria are involved. In the great majority of cases of sepsis the cause of the fever is usually easy of discovery. It is chiefly in the cases of endocarditis and deep abscesses such as in or around the liver and kidneys that the causative factor is obscure. Fortunately for the patient, these abscesses are usually well localized. Bacteriologic tests cannot help the diagnostician in these infections except by elimination of other possibilities in the differential diagnosis. Tuberculosis of the lymphatics, bones, joints, or meninges makes itself apparent in the physical findings and symptoms. Renal and early pulmonary tuberculosis are, however, frequently difficult of diagnosis.

Two diseases of animal origin, undulant fever and tularemia, give rise to persistent fevers, and both of them may be difficult of recognition under certain circumstances. Undulant fever is a disease particularly difficult to detect without the aid of laboratory tests. The signs and symptoms are quite variable, and in different patients may simulate various other unrelated diseases. Tularemia, in the great majority of cases, is accompanied by a definite history of exposure to rabbits, and in about 80% of the cases in our experience, the disease is of the characteristic ulceroglandular type. On the other hand, typhoidal tularemia, in which fever alone is the principal finding, is a troublesome diagnostic problem until recourse is had to laboratory tests. About 10% of Illinois cases of tularemia have been of the typhoidal type.

Pulmonary Tuberculosis. In pulmonary tuberculosis, the demonstration of tubercle bacilli in the sputum is the most conclusive evidence of the presence of the disease. Unfortunately in many early cases the bacilli are either not present in the sputum or are so few that their detection is difficult. There must be some communication

Read before the Section on Public Health and Hygiene of the Illinois State Medical Society at the Eighty-fifth Annual Meeting, Rockford, May 21-23, 1935.

between the lesion and the bronchi before tubercle bacilli are found in the sputum. It is commonly stated that the sputum is positive in 30 to 35% of early cases of tuberculosis of the lungs.

The chances of finding tubercle bacilli are greatly increased when a good concentration method is used instead of direct smears of sputum. It has been the routine practice of the Illinois Department of Public Health Laboratories for a number of years to concentrate all sputum specimens submitted for microscopic examination for tubercle bacilli.

It should be remembered that negative sputum findings have little diagnostic significance. Numerous negative results over a period of time do not exclude the possibility of the disease; they do, however, lessen the probability that the patient has pulmonary tuberculosis. In children or other patients from whom true sputum cannot be obtained, recourse may be had to an examination of the feces or gastric contents. Acid-fast bacilli in the feces may be derived from swallowed sputum in these cases. Other non-pathogenic acid-fast bacilli derived from the diet constitute a possible source of error in smear diagnosis of feces. Before a positive diagnosis of tubercle bacilli is made in such cases, the suspected organisms should be proved to be pathogenic for guinea-pigs. If tubercle bacilli from swallowed sputum are found in the feces, they can be found with less difficulty in the sputum itself, and have more significance from the latter source.

Examination of gastic contents for tubercle bacilli has been done especially in children. Recent reports by Nalbant and by Mishulow, Kereszturi, and Hauptman indicate that repeated examinations of the feces by smear and guinea-pig inoculation will yield as much information as can be obtained from gastric lavage specimens. It is obvious that gastric samples are not as easy to obtain as fecal specimens. When the child is not hospitalized, it is especially difficult in most cases to collect gastric samples, whereas fecal examinations can be made as often as desired without any discomfort to the patient. Suspicious organisms from gastric lavage material should also be tested in guinea-pigs before being definitely labeled tubercle bacilli.

Chemical tests for albumin in the sputum are too commonly positive in a variety of respiratory infections to be of significance in the diagnosis of tuberculosis. When the albumin test is persistently negative, it may be helpful in excluding the probability of tuberculosis.

The complement fixation test in tuberculosis is a laboratory procedure of questionable diagnostic value. There is no doubt that specific complement-fixing antibodies are frequently present in the sera of persons with tuberculous infections. The difficulty arises when it is found that patients having non-tuberculous infections and also that apparently healthy persons give a rather high percentage of positive reactions. The test is usually positive in patients having clinically obvious tuberculosis, but diagnostic help is not needed in such cases. Table 1, taken from Topley, indicates in general the results that have been obtained.

TABLE I. COMPLEMENT FIXATION IN TUBERCULOSIS

Type of Disease	Per cent. Positive
Pulmonary tuberculosis with positive sputum...	85
Clinically tuberculous pleurisy.....	46
Tuberculous peritonitis	80
Tuberculous meningitis	Rarely positive
Glandular tuberculosis	38
Bone and joint tuberculosis	50
Renal tuberculosis	90
Healthy persons	10-15
Non-tuberculous disease	10

(From Topley, "An Outline of Immunity," Wm. Wood & Co., 1933.)

Much experimental work has been done in recent years on the complement fixation reaction in tuberculosis. Numerous extracts and preparations of tubercle bacilli have been used as antigens in the test, without having refined the test to an appreciable extent. At the present time, the result obtained with the serum of a given patient must be considered in conjunction with all other findings on that patient. If other signs point to the existence of a tuberculous infection, a positive fixation reaction has supportive value; a negative reaction should not weigh too heavily against the other findings.

Renal Tuberculosis. Patients with renal tuberculosis may show no symptoms for a long time. Attention is directed to the condition when symptoms appear, and this is usually after the lesion has broken down and tuberculous material has gained access to the pelvis and ureter. It is at this stage that tubercle bacilli can be found in the urine, and their finding is of real service in establishing the diagnosis. Catheterized samples of urine, in which acid-fast bacilli are found, should be injected into guinea-pigs to distinguish tubercle bacilli from smegma bacilli. Study of

the urine from each kidney separately is of importance when surgical removal is considered.

From the relatively high percentage of positive complement fixation reactions obtained in renal tuberculosis, this test may be used to advantage to substantiate other findings in suspected cases.

Other kidney infections lend themselves readily to bacteriologic diagnosis. The repeated finding of pyogenic organisms in carefully collected samples of urine is of value in establishing the etiology in these cases. Perinephritic abscesses must be discovered by other than laboratory methods. The causative organisms are not accessible and the bacteriology of the abscess material after operation is only of secondary interest in most cases.

Typhoid Fever and Related Infections. Typical cases of typhoid fever are relatively easy of diagnosis and laboratory findings serve only as confirmatory evidence. When the disease is not typical, the diagnosis depends very much upon the results of laboratory tests. Typhoid bacilli have been found occasionally in sputum and in the rose spots on the skin—but for practical purposes, blood, feces, and urine are the most likely materials from which to cultivate the organisms. For an early clear-cut diagnosis, nothing is superior to a positive blood culture. The bacilli appear in the blood even in the first few days of the disease and can be isolated very easily in pure culture. A specimen of blood (5-10 c.c.) drawn into a sterile tube is all that is needed. The clot, freed from inhibiting substances of the serum, can be cultured in suitable medium. The serum which has been removed from the clot can be used for a Widal test. Thus a single sample of blood serves two purposes. Our laboratories have been culturing clots from all blood specimens from fever cases, even from those on which only a Widal test has been requested. We are using a bile medium which gives excellent results. This method is yielding higher percentages of positive results over longer periods of time than have been obtained with other media.

Under ideal conditions, a definite diagnosis of typhoid fever is made early by finding typhoid bacilli in the blood. In obscure cases, or if for any reason blood cultures have not been made, the organisms can be isolated from the feces in a large percentage of cases during the second and third weeks of the disease. There is also a sharp rise in the number of positive Widal tests in the second week. Urine is not good material to examine for typhoid bacilli. Positive urine cultures are obtained late in the course of typhoid fever but a great many typhoid patients apparently do not excrete the bacilli in the urine. The chief importance of culturing both feces and urine is in releasing patients from quarantine, since it is by these excretions that persistent carriers infect other persons.

The paratyphoid fevers are often atypical and diagnosis is obscured by the variations in clinical pictures. Laboratory methods of diagnosis are essentially the same as in typhoid fever. Positive blood cultures present the best diagnostic evidence and, as the bacteremia is frequently of longer duration than in typhoid infections, positive blood cultures are often found over a relatively longer period of time. Emphasis is placed on blood cultures in the paratyphoid diseases because of two factors. There are certain varieties of so-called "para-typhoid-like" organisms whose status as disease producers is not clearly established; and transient gastrointestinal upsets produced by these related bacilli, and even by true paratyphoid bacilli, may result in positive stool cultures. Because of the above conditions a positive blood culture is the most reliable indication of actual invasion of the body.

The Widal test in typhoid fever and similar agglutination tests in the paratyphoid infections could be discussed at great length. The effects of previous vaccination, individual variations in agglutinin production, non-specific anamnestic responses, and the newer conceptions regarding somatic and flagellar agglutinins, are some of the factors bearing upon the interpretation of the results of such tests. Immunologists specializing in this field are not agreed upon the significance of many of the observed phenomena; and the general practitioner would have time for little else if he attempted to read and digest all that is presented in the literature on these subjects. As a practical alternative, problems of interpretation of laboratory findings should be referred back to the laboratory. A brief sketch of the pertinent history of a given case together with the agglutination results is enough ordinarily for the laboratory to give an opinion based on the latest reliable information.

TABLE 2. APPROXIMATE PERCENTAGE OF POSITIVE FINDINGS IN TYPHOID FEVER CASES OF AVERAGE DURATION

	Weeks			
	First	Second	Third	Fourth
Blood Culture	90	75	40	20
Feces Culture	15	60	85	60
Widal Reaction	10	75	85	90
Urine Culture	0	5	25	10

(From Park & Williams, "Pathogenic Microorganisms," Lea & Febiger, 1933.)

Bacterial Endocarditis. Endocarditis in its broadest sense may be defined as an inflammation of the endocardium. Various classifications of the different clinical conditions and theories of pathogenesis need not enter into this discussion. Whatever information may be secured from bacteriologic examinations of the blood must be interpreted by the physician in the light of other findings on a given patient. From the standpoint of the bacteriologist, there are several factors bearing upon this interpretation. The bacteria which have been cultured from blood are of the same types commonly found in the nose and throat. As might be expected, any disturbance of the upper respiratory tract, either inflammatory or traumatic, offers an opportunity for the possible invasion of the blood-stream by this bacterial flora. This idea is borne out by the frequent finding of positive blood cultures during active inflammation of the nose and throat. Several workers have also shown that these throat organisms may become temporary invaders of the blood-stream during or following tonsillectomy. It is therefore apparent that the mere presence of such bacteria in the blood does not prove their etiologic connection with any heart condition in a given patient. Another factor enters into the interpretation of positive blood cultures when the organisms isolated are staphylococci. Here one must bear in mind the wide distribution of these cocci and especially their constant presence on the skin. All steps in the collection and handling of blood specimens must be rigidly controlled to prevent the introduction of staphylococci from the skin.

On the other hand, negative blood cultures may be obtained under certain conditions from true cases of bacterial endocarditis. One factor leading to such a result is the intermittent discharge of bacteria from the lesions into the circulating blood. Samples of blood collected at times when no bacteria are being liberated will of course be negative. Another factor leading to a false negative result is the fastidious nature of the bacteria causing certain forms of endocarditis. A common example is the gonococcus. Even under the best conditions, and when the laboratory is aware that gonococci are expected in the blood-stream, this organism is difficult to cultivate.

From the above it is apparent that the result of a single blood culture, either negative or positive, is of slight diagnostic value. Much more significance can be attached to the laboratory findings when repeated cultures consistently yield the same result.

Undulant Fever. Undulant fever, with its variable symptomatology and uncertain course and duration, is very often a difficult diagnostic problem. The most careful physical examinations commonly end with the examiner having found nothing of significance. Such findings in a fever patient should always suggest the possibility of undulant fever. The test which has been of most value in public health laboratories is the agglutination reaction with the patient's blood serum. Cultures of blood, feces, and urine have been disappointing in most cases. Blood drawn and immediately injected into guinea-pigs has given the best results in isolating the causative organisms. Good cultural results have also been obtained when the blood is immediately discharged into suitable culture medium and incubated for 4 or 5 days before being sent to the laboratory. Although a positive result would furnish the best sort of evidence, these cultural methods have been found to be too inconvenient and impractical for general use.

The agglutination test is much simpler and in the usual case with long-drawn onset, the serum is ordinarily positive at the time of the doctor's first visit. A common question is what titer should be considered significant in the evaluation of positive agglutination reactions in undulant fever? In other words, is a positive reaction in a dilution of 1:40 or 1:80 definite evidence of active undulant fever? It is especially in cases of uncertain clinical diagnosis that agglutination findings form an important part of the evidence on which a diagnosis is based.

From studies of the general population and also of certain selected groups, there are available some data of value in this connection. If we obtain positive agglutination at a titer of 1:10 the odds are about 15 to 1 that the patient

is infected. When the titer reaches 1:50, the odds are about 100 to 1 that the patient is infected. At higher titers the probability of infection rises rapidly.

A different interpretation must be used when the patient belongs to specialized occupational groups such as butchers, slaughter-house employees, or rural veterinarians. While persons engaged in these occupations run a relatively greater risk of active infection, they are also liable to the development of agglutinins through latent infections. The chances are about even that a veterinarian engaged in farm practice will show a titer of 1:50 regardless of the nature of his present infection. If his blood agglutinates at titers between 1:100 and 1:500, the odds are only about 4 to 1 that he is infected. Likewise 1 out of 10 butchers or slaughter-men will probably show a titer of 1:40 in the absence of active infection. It is necessary, therefore, to know the occupational group to which a given patient belongs in order properly to weigh the evidence obtained from agglutination tests for undulant fever. In cases where a titer of doubtful significance is obtained, additional samples of blood at intervals will show a definite rise in titer when the fever is due to active infection.

Tularemia. There is no difficulty in making a diagnosis of tularemia when the patient gives a history of handling rabbits, and presents an ulcer with involvement of the lymphatics draining the infected area. When such history is not obtained, or when there is no ulcer at the point of inoculation, the cause of the fever is not so evident. About 10% of Illinois cases have been of this obscure "typhoidal" type, in which fever is the only definite sign. The most useful laboratory procedure in all forms of this disease is an agglutination test with the patient's blood serum. The test is usually definitely positive during the second week and the antibodies persist in the blood for years.

There are two precautions to be observed in connection with laboratory tests for tularemia. One is that a negative result may be obtained on blood that is drawn early in the course of the disease. If additional samples are drawn later, after the agglutinins reach a detectable concentration, this pitfall will be avoided. Another chance for misintrepretation occurs where a positive result is due to antibodies persisting from a previous tularense infection. That is, a patient may have a fever due to some unrelated cause, and at the same time his blood will show tularense antibodies because he had tularemia in the past. In such instances a more detailed inquiry into the medical history of the patient will usually clarify the situation. Besides this questioning of the patient, repetition of the test will show little or no increase in the concentration of antibodies if the present fever is not due to tularemia.

SUMMARY

1. Isolation of pathogenic organisms or demonstration of antibodies can be of assistance in the diagnosis of certain fevers of obscure origin.

2. Actual demonstration of pathogenic bacteria in materials from the patient furnishes the best diagnostic evidence in most infections. The limitations to this approach have been discussed.

3. The findings of specific antibodies in the patient's blood is indirect evidence of infection. The medical history and occupation of the patient are of importance in determining the significance of both positive and negative results.

4. Repeated laboratory tests yield more conclusive evidence than single tests.

DISCUSSION

Dr. Cecil Jack, Decatur: The essayist has given an able paper as to what help the physician can obtain from the laboratory in his diagnosis of obscure fevers. The laboratory may make the diagnosis when our clinical observation fails, as in undulant fever, or it may confirm our diagnosis as in tularemia or typhoid. In tularemia and undulant fever the skin test has now been perfected and is positive much earlier than the agglutination test. In sepsis a positive blood culture aids us in identifying the causative germ, thus helping us with our prognosis. In endocarditis the same may be said. In a recent case, blood culture early disclosed that it was a blood stream infection while the heart murmur did not appear until shortly before death.

The essayist speaks of the value of sputum tests in tuberculosis. This has not been our experience. To determine the value of sputum examinations in pulmonary tuberculosis we recently took sputums on all the patients at the Macon County Sanatorium on one particular day. Of these 63 patients, 25 were far advanced, 23 moderately advanced and 15 minimal. Of the far advanced 9, or 36%, were positive on this day; 21, or 84%, had positive readings sometime during their stay in the Sanatorium. Of the moderately advanced, 4, or 17%, gave positive readings on this day, whereas 12, or 52.2%, gave positive reading some time during their stay. Of the minimal group none of the

15 gave a positive reading on that day, whereas only one of this group gave a positive reading during the stay in the Sanatorium. One patient, a minimal case, did not develop a positive sputum until he had been in the Sanatorium for three months, and sputums were examined weekly. However, another laboratory comes to our aid—the x-ray laboratory. Well-taken stereoscopic films, expertly interpreted, have far outclassed any one aid in our diagnosis of pulmonary tuberculosis.

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THE TREATMENT OF OBSCURE FEVERS

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The term obscure fevers is used in this paper for want of a better name to designate two groups of disease processes. 1. A group which at the outset is difficult to diagnose but later is proven to be a pathological condition caused by a known etiological factor. 2. A small group characterized throughout its course by fever of unknown origin. Several of this latter group have been the subject of thorough studies. No known germ or cause could be found as the causative agent. Some of these cases presented features that had some of the characteristics of Hodgkin's disease, others blood stream infections, others nervous phenomena, and still others were negative in every respect except for the presence of a more or less persistent fever. As the diagnostic features of obscure fevers have been presented in another paper, an attempt to outline the treatment will be made in this paper.

What is a fever? A continuous mouth temperature of 99 degrees F. should be looked upon with suspicion and a careful search made to discover a cause for the slight but persistent elevation of temperature. The National Tuberculosis Association has established a standard that seems to me to be most satisfactory. A temperature which persistently runs over 99.4 degrees F. when taken at least four times daily over a period of one week with the thermometer in the mouth at least five minutes should be considered of significance and should constitute a fever. The normal temperature is about 98.4 degrees F. with diurnal variations of about 1 degree F. lowest in the morning between hours of six and seven, and highest in the afternoon between hours of five and six.

Heat production occurs mainly by oxidation and chemical changes in the muscles and also to some degree in the liver and kidneys. Heat dissipation is mainly by radiation and conduction through the skin; this accounts for about 75% of the total loss. Evaporation by sweat accounts for about 14.5%, expiration about 10.7% and the excretions about 1.8%.

Hyperpyrexia may be produced by several agencies, as food, exercise and environment, which may be considered normal. Barbour's definition of fever is "any positive heat balance due not solely to food, exercise or environment."

Under normal conditions the heat regulating mechanism with its center near the optic thalamus and corpora striata is adjusted to about 98.4° F. In fever due to disease the adjustment is to a higher level and is not as perfect as under normal conditions, and gradually as the disease improves, as for example in typhoid fever, the temperature approaches normal, better and better results follow hydrotherapy, and as time goes on the temperature level is finally again established at normal. During this fever it is possible that toxins produced by the disease producing germs present caused the tissues to break down and in this way increased the osmotic pressure of the protoplasm. Water is taken in from the blood, reducing the volume of the blood. The superficial capillaries are apparently more affected than the deep vessels and consequently the skin becomes cool; the nervous reflex against cold is aroused and shrinking of the superficial capillaries take place. Shivering at times may result; this is nature's way of producing more heat.

During this fever there has also been a derangement in heat dissipation. When the temperature of a normal person is raised 1 degree C. a marked increase in cutaneous blood flow follows and profuse perspiration results. In a fever case this may not take place. The heat regulating mechanism is fixed at a higher level. Experimentally animals have been exposed to moist heat for considerable periods of time without serious results. This points to the fact that possibly the injurious results in fevers are due to

Read before Joint Session of Section on Public Health and Hygiene and Section on Medicine. Illinois State Medical Society, May 21, 1935.

the toxins of the infectious agents. Practically, however, it seems in the experience of the clinicians that excessive temperatures must be controlled. It is recognized that fever is apparently a protective measure on the part of the body. It impairs the viability of organisms; the increased metabolic activity increases the resistance to infection but when in excess of 103 degrees in prolonged fevers as typhoid or 105 degrees in short febrile attacks efforts must be made to reduce the fever. Simple hyperthermia is an elevation of body temperature with its attending changes. Fever is a more complex phenomenon in which the effects of hyperthermia are complicated by the effects of other agents of chemical or toxic nature. In fevers immunological reactions in the blood are noted and the reticulo-endothelial system shows greater phagocytic activity.

Hyperthermia can be produced experimentally by injection of proteins or their split products. Presumably they cause destruction of tissue protoplasm with increased formation of heat. Similar effects are seen as the result of absorption of sterile blood clots. The degree of fever after coronary occulsion may be an index to the extent of the damage to the heart muscle. Excessive pyrexia from whatever cause, produces depression of the central nervous system and impaired respiration followed by circulatory embarrassment and ultimately general asphyxia. Hydrotherapy and antipyretic measures should be used to control fever and bring the temperature down to 101 degrees to 103 degrees F. Nothing is gained by allowing a continuous temperature in excess of 103 degrees F. It should be remembered, however, that merely lowering the temperature does not necessarily lessen the toxicity of toxins in the body.

Another factor to be recognized in pyrexia is partial starvation due to impaired desire for food, and an increased breakdown of protein to meet caloric requirements. It is, of course, recognized that protein decomposition is also caused by high temperature and the action of toxic decomposition products. The destruction of protein is indicated by the increase of creatinin, purin bases, and incomplete hydrolyzed proteins as albumoses in the urine. The effect of starvation can be met by careful attention to the diet.

Aside from infectious processes, parenteral injection of foreign protein, and excessive destruction of protein in the body itself there should be mentioned for the sake of completeness three other causes of fever; namely, action of certain drugs, nervous influences and injury to the base of the brain and upper levels of the spinal cord.

TREATMENT OF FEVER OF UNKNOWN ORIGIN

The greatest difficulty in adapting this paper to meet the requirements is that it is impossible to prescribe a method of treatment for a specific condition. However, in asking for a paper to discuss this topic it is inferential that frequently a physician is confronted with just such a situation and to meet this predicament a paper has been called for to discuss this subject. The speaker, as well as all other physicians, who has been in practice for a number of years has been called upon to treat these cases; sometimes the results have been satisfactory, at other times not so satisfactory. In preparing this paper the speaker has reviewed the literature of recent years and combining the experience of others with his own an effort will be made to outline the treatment.

It is axiomatic that the treatment should not cause any harm. When called upon to treat such a case the physician is always concerned as to the possibility of a grave disease being responsible for the fever. The most important step in the treatment is:

1. Rest. Complete rest in bed, with careful attention to all needs and with a minimum of exertion on the part of the patient. Mental rest as well as physical rest should be enforced until it is seen the patient will be benefited by some form of entertainment later. Attention should be given the mouth, proper cleansing of the teeth and gums should be instituted; the tongue should be inspected at each visit. A good simple mouth wash is hydrogen peroxide diluted one half with water. Steps should be taken early to prevent bed-sores. By changing the position of the patient from side to side hypostatic pneumonia may be prevented, especially in the aged. See to it that the room is thoroughly ventilated and that the humidity of the air is within normal range. In winter a common cause of extreme discomfort in bed ridden patients is excessive dryness of the air; this may also be a predisposing factor to complications in the respiratory passages.

Adequate sleep is very important. Rules of quiet should be enforced in the household; the simple procedure of turning out the lights in the bed room sometimes favors sleep.

2. Drugs. Hypnotics should of course be used where necessary. It is my policy to use morphine only as a last resort unless there are urgent reasons for its employment which I will not mention here. Phenobarbital, acetylsalicylic acid, bromides, amytal and codeine are satisfactory drugs in many cases. In delirium and cases presenting mental symptoms hyoscine may have to be used and measures taken to confine the patient to the bed.

3. Diet. During the first few days of a fever case it is not necessary to observe so carefully the caloric intake. But if the case proves to be a protracted siege of fever, it is extremely important to pay careful attention not only to the quantity but also the quality of the food. Thirty calories per kilogram in 24 hours are necessary, but this may be increased to 40 calories if the temperature averages 102 degrees F. and even to 50 or 60 calories in higher temperatures.

Carbohydrates are especially desirable in fever in order to counteract the tendency to acidosis because the fatty acid molecules are not properly oxidized.

Milk is of course a most important article of diet. An adult weighing 150 pounds should have from 2,100 to about 2,800 calories in 24 hours; of this protein would constitute about 65 to 80 Gm., the bulk would be carbohydrates as fat is not well utilized in fever. It is evident that a fever patient can not comfortably take enough milk to meet the requirements of his body as one liter of milk has about 700 calories. He may take two liters, so it is necessary to make up the rest in carbohydrates, or milk in the form of buttermilk or soups. Over 1,000 c.c. fluid is necessary in twenty-four hours. It may be necessary to give liquids by hypodermoclysis or proctoclysis, and in children intraperitoneally. The milk will take care of the protein but about 800 calories of carbohydrate will have to be added in the form of cereals, gruels, vegetables, fruit juices and sugar.

If the mouth is not too dry, solid foods may be given if the patient's condition warrants it. Coffee or tea if there are no contraindications may be given once or twice daily.

In constipation cooked fruits and vegetable purees are helpful. Cascara sagrada is useful if a cathartic is required and enemas if hard stools are present.

The use of dextrose should be mentioned. Five per cent. dextrose solution can be given to prevent hypohydration. This may be combined with a physiological solution of sodium chloride in case of hypochloridemia. Ten per cent. dextrose is used where carbohydrate is required; and 25% dextrose may be given in amounts of ten to twenty c.c. slowly several times a day when the heart is failing. This is especially used in prolonged inanition.

Antipyresis is indicated in temperatures in excess of 103 degrees F. in prolonged fevers and 105 degrees F. in short fevers. In typhoid fever some favor giving the Brand tub baths when the temperature reaches 102.5 degrees F.

Sponge baths once or twice daily is good in all cases. The stimulating effects on the nervous system, the circulation and the general tonic effect are very beneficial. Elimination is also favored, and resistance to infection increased.

When cold is applied to the skin it is well to take care to prevent an untoward reaction. Keep the skin red by massage or by the use of a mustard pack. A cold wet pack may also be used as a sedative in case of restlessness.

Many so-called fever mixtures owe their beneficial effect to elimination. There are several diuretics and cathartics that are useful. Sodium citrate and squills are beneficial, infusion of digitalis where cardiac symptoms are present during a fever; and calomel, and aloes as laxatives are useful.

Medical antipyretics depress metabolism while lowering the temperature, nevertheless they are useful in allaying headaches and general discomfort aside from the high temperature. In this group of drugs are found quinine, the salicylates, and the pyrazolparamidophenol compounds.

Quinine, aside from its specific effect on the malarial parasite, lowers metabolism, slows the pulse, relieves pain and has a calming effect on the nervous system.

The salicylates are of special value in acute rheumatic fever; acetylsalicylic acid is of especial value in relieving pain.

In the pyrazolparamiodphenol group is acetanilid, a drug of considerable value as an anal-

gesic. It should be used with care and discontinued if pallor, cyanosis, faintness or heart symptoms are produced. Acetphenetidin and amidopyrine are also of value. In the use of some of these drugs the relationship between the benzol ring and agranulocytosis should be kept in mind.

Antipyrine is especially useful because it can be used in liquid form and also in enemas.

If collapse symptoms appear digitalis, strychnia, caffein sodium, benzoate, or caffein as coffee is of value. Camphor is of especial value in emergencies. Epinephrin is also of value, and atropine of particular value in collapse in pneumonia. Amyl nitrite and aromatic spirits of ammonia are also popular measures.

Abdominal binders, bandages around the limbs and elevating the foot of the bed are mechanical measures that may be of some help.

During convalescence watch for rapid pulse after slight exertion or excitement, and if noted keep the patient in bed longer. Iron and arsenic are of value during this period.

During this time the physician who has had a case of fever of indeterminate cause under his care has been using all known measures to determine the diagnosis. Aside from the history and a complete physical examination, x-ray and laboratory examinations have been completed. In some cases repeated laboratory tests have been made. In a recent case under my care repeated blood examinations were made before finally a positive paratyphoid B. was obtained. In another case repeated sputum examinations failed to show the B of tuberculosis in a patient ill for several months with a pulmonary disorder, finally a search was made for fungus infection and a mycelium showing the characteristics of a sporothrix was found. This cleared up promptly after the use of potassium iodide.

It is well to remember that the more common infections are the most likely to be found in this search, so the laboratory tests should at first be directed in this direction. Influenza may be puzzling, and keep in mind malaria. A patient returning from the south, or who has lived in the south may harbor the parasite for years. Bronchitis, bronchicetasis, syphilis, tuberculosis and the insidious onset of a malignant growth and pernicious anemia should always be kept in mind. Typhoid fever may come on with most obscure symptoms; the same holds true for paratyphoid A and B. Relapsing fever occasionally is seen. Undulant fever is no longer a rarity in this country, and the same holds true for tularemia and spotted fever. Pyelitis and a perinephritic abscess should be kept in mind. Food infection and subacute bacterial endocarditis should never be forgotten in this search. Aside from the ordinary examination of the blood stream always remember to look for infectious mononucleosis and agranulocytosis. Sinusitis and hyperthyroidism should never be overlooked. Typhus fever in its camouflaged form Brill's disease may be met with, aleucemic lymphatic leucemia may also be seen.

Hodgkin's disease may have an insidious onset, this is especially true of the Pel-Ebstein type characterized by a fever of relapsing type. An afebrile period of several days may separate the periods of fever. There may be no enlargement of the lymph nodes or the spleen. A blood examination may settle the diagnosis.

Diverticulitis and diverticulosis should also be looked for. Encephalitis and epidemic pleurodynia are not so likely to escape diagnosis if kept in mind.

The term obscure fever does not necessarily mean a new disease, but it also covers those clinical conditions frequently met with that may camouflage their presence and be difficult to diagnose.

Having found one of these diseases to be present the treatment is directed toward this particular disease and is outside the province of this paper. But after this clearing of the field we still have with us a small group of cases that persist in hiding their identity.

Examples of this type are the three cases of unexplained anemia and pyrexia reported by O'Donaghue and Witts. In all three the attack lasted over six months with negative Van den Bergh reactions, and no evidence of nutritional disorders. These cases were apparently cured by transfusions.

Chevallier and Bernard have described a case presenting some of the features of the three cases just mentioned and also some features of an attenuated Hodgkin's disease. This case was cured by x-ray after three months treatment.

These four cases suffice to illustrate a group of cases that need further study. Are they dis-

ease entities of hitherto unknown diseases or are they variants of already known diseases? A significant fact is that transfusion and x-ray apparently cured these cases.

Another group that might be called the neurogenic psychogenic group is illustrated by a case reported by Reimann. Although many deny that purely nervous or psychic factors may cause fever, there is evidence to show that fright, worry, hysteria and mental disturbances may do so. The case reported was a woman and had a fever especially noticeable during the latter half of the intermenstrual period. This case had been known to have a fever for nineteen years and all known causes had been eliminated. If fever from ordinary causes is associated with a deficit of free water in the body, it seems that it might be possible in the so-called neurogenic psychogenic group that are absolutely negative as far as physical findings are concerned that the fever is due to an unstable heat regulating center. Many of these patients are women and the menses seemed to play a part in some cases. Possibly some of these women may be sensitized to their own blood.

In these cases drug treatment has proved unsatisfactory. The measure that seems to have given the best result is rest and the assurance that the fever does not mean tuberculosis or any other serious disease. The prognosis is good as far as the mortality is concerned. Here again further study is needed as it might be possible that at least some of these cases represent a hitherto undetected disease entity.

SUMMARY

1. In the management of a fever of obscure origin symptomatic treatment is indicated until the cause of the disease is finally determined. Rest, hydrotherapy to keep the fever within bounds, an adequate diet to meet the needs of the patient, and the ordinary simple drugs as indicated, usually suffice during this period of expectant treatment. When the cause is finally determined the usual treatment is indicated.

2. In the small group of febrile cases of undetermined origin, there are a number of cases that present some of the features of an anemia of unknown cause and also some similarity to atypical Hodgkin's disease. These cases have responded to transfusion and also in one case to x-ray treatment.

Another group in this second class is what might be called the neurogenic psychogenic group. This group responds best to rest and to assurance that no serious disease is present.

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DISCUSSION

Dr. Normal C. Bullock, Rockford: Dr. Egdahl has ably dealt with this very difficult subject. He has left little to be discussed in the symptomatic treatment of obscure fevers.

There is little to do in the line of specific treatment of any disease unless a definite diagnosis can be established. It is with this thought in mind that I would like to stress the importance of the agglutination test for undulant fever in these cases of obscure fevers.

Dr. Egdahl states that undulant fever is no longer a rarity in this country. I feel that Dr. Egdahl is correct in this statement, and there is no doubt that we would discover more cases if this disease was constantly kept in mind.

Undiagnosed cases are frequently found by the examination of serums submitted for tests other than those for evidence of undulant fever.

The prevalence of this infection among persons from whom specimens are serologically tested for syphilis would probably be fairly representative of what might be expected in the general population.

In the State of New York definite agglutination of B. abortus in a dilution of serum 1:80 or higher has been obtained in from 0.3 to 0.4% of approximately 200,000 specimens received for the complement-fixation test for syphilis. Over 30% of these reactions occurred in a dilution of serum 1:320 or higher.

In a population of twelve and one-half millions, the above 0.3% would suggest 37,500 cases in the state, of which 30% or 11,250 were recent infections. These figures compared with the number of reported cases would indicate that less than 10% of the actual cases of undulant fever are now being reported.

The Illinois State Department of Agriculture estimates that 50% of the herds in the State are infected with Bang's disease. With this number of infected cattle and the recent practice of raw milk stations surrounding every municipality, it is surprising that more cases are not discovered.

It has been the practice of the Health Department of Rockford to do an agglutination test for undulant fever on all specimens of blood sent in requesting a test for typhoid or para-typhoid if these tests prove to be negative. As a result of this procedure, several cases of undulant fever have been discovered here.

We must change our line of thought regarding the incidence of diseases in looking for the cause of obscure

fevers. We constantly keep in mind the typhoid group but often neglect to look for undulant fever.

In 1934, eleven specimens of blood were examined in our laboratory for typhoid fever, none of which gave a positive test. Of these eleven specimens, however, 4 gave a positive agglutination test for undulant fever.

Dr. Egdahl, in closing: I purposely refrained from outling the treatment of the well-known diseases that are sometimes obscure in their onset. I wish, however, to make a brief reference to some new therapy. In malaria, atabrine has given excellent results. Then there is the use of the iodides in treating some of the mycelian infections, and in undulant fever the use of arsphenamine and acriflavine.

POISE OR NERVOUSNESS

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The difference between poise and nervousness lies in the control of the person through his or her nervous system. One definition of poise is a "state of being balanced." This is really an excellent definition for our purpose. Balanced action is a condition of nature for many activities. While we are discussing responses of the nervous system examples may be given in other fields as a preliminary. When one muscle contracts its opposite relaxes. Movement of the body in one direction causes compensating movements to be made in the other to maintain balance. One set of digestive glands produces acid products to aid in preparing food for absorption while another set pours out alkaline secretions for the same purpose.

The same general situation applies when we turn to the field of nervous and mental activity. Consciousness is divided into two great fields, one of thinking and one of feeling. The first is called the intellectual field. It includes the ability to acquire and retain knowledge, to connect it through thinking processes so as to arrive at a decision which in turn leads to action. It may be briefly summed up as what we know about things.

The emotional field is the second great one. It includes our response as affected by pleasure or pain, joy or sorrow, love or hate and rage, trust or fear, admiration or disgust and many other sensations, any or all of them varying in degree, some acting more powerfully than others. A summary of this field would be how we feel about things.

A balance between the intellectual and the emotional field is what makes us think of A as poised. B may be nervous because he does not have this balance. The trouble is much more likely to be in his emotional field than in his intellectual one. A and B and all the rest of us have arrived at our present stage of being as the result of evolutionary processes millions of years in the making. It is anatomically correct to say that the unborn babe passes through in nine months stages of development that represent the life history of our race and of forms that preceded ours in the sea and on the earth. Sensations mentioned previously were experienced by lower forms long before man with his mind and soul came into being. Consequently emotional response is much older and therefore has earlier claim on man than does intellectual.

The fundamental tendency towards this response at its deepest level is held in common with the animals and is called instinct. Campbell says, "The animal has an instinctive curiosity but in primitive man the horizon of this curiosity begins to be greatly enlarged and as human nature has developed the search for knowledge has come to recognize no limits." Yet in this search for knowledge certain primitive feelings must still be reckoned with.

A part of our body, called the autonomic nervous system, has much to do with the way we respond to these primitive feelings. It derives its name autonomic from the fact that it is not directly controlled by the brain, hence is more or less automatic in some ways. It is also called the involuntary or vegetative nervous system because its actions are not controlled by the will and because it has to do with the vegetative or mechanistic part of the business of living. A characteristic feature of it is balanced action between two main divisions, one causing one predominating type of response, another the opposite. Laughter, tears, blushing, pallor are some of the more frequently seen manifestations. There are others going on within the body causing changes in the flow of blood through muscles or vital organs, increase or decrease in heart rate and volume of output, variations in amount of sugar in the blood and tissues which were more important when man or his predecessors

Read before Health Conference Series, Y. M. C. A., Springfield, Illinois, January 25, 1935.

had to fight or run in order to insure safety. Nowadays in civilized communities the instinct of self preservation is not called on as a matter of daily occurrence, yet the mechanism is still there. Every once in a while it does something to us to disturb our poise, particularly in the way of fear. A may have whistled when he walked past the graveyard as a little boy. This was one type of response to the instinctive fear of death and of the dead. The point is that he walked past it and conquered some of that instinctive fear while B who was afraid of the dark, the instinctive fear of the unknown, wouldn't go to bed unless there was a light in the room. As B grows older he eventually goes to bed without a light but he hasn't really conquered his fear. It is still there to break out in another fashion, perhaps the fear of thinking that he has heart disease because his heart beats fast when he smokes too many strong cigars. He becomes apprehensive, is afraid to walk, to exercise, to go in crowds. He consults many doctors who tell him his heart is all right but he knows better and knows he is going to die. His instinct of self-preservation is profoundly disturbed, his nervousness assured.

The instinct of preservation of the race is equal in fundamental importance to that of preservation of the individual. Society as a whole is built upon the foundation of the family as a unit. The family unit has as its inherent organizing basis this instinct. It is refined, consecrated and inspired when adequately directed by the individuals most concerned. In addition to its part in the preservation of the race the creative instinct may be expressed in everyday life, in work, play, love and worship. When this instinct is uncontrolled, misinformed and mismanaged it is capable of causing disaster to the health and happiness of the individuals and to others as well.

One type of A is the man or woman who is happily married, may or may not have children but who is a partner in a family and a worthwhile citizen of the community. Another A may not be married but uses this driving instinct to carry out some real job. All the A's are not men. In most countries, unless decimated by war, the ratio of men to women is about 104 to 100. Well balanced women and men are working, playing, helping for the love of some person or thing, worshiping and developing a well rounded personality.

Then there are the B's whose response to this instinct is impaired. Many people think of brutal husbands or Don Juans with no consideration for their wives or other women as coming under this heading. Erring wives and loose women are likewise included. True these do make a formidable number in the uncontrolled group. Misinformed people incapable themselves of recognizing the intensity of this feeling, doubting the value of it, thinking of it on the low rather than the high plane are, however, to be found in any community as the narrow-minded gossiping zealots who are not happy themselves and do not want anyone else to be happy. The mismanaged ones may be found in married couples who do not get along and suffer for it or make their families suffer with them. Under such circumstances for any of these unfortunate B's it is not surprising that nervousness of various types arises.

A recognizes the presence of his instincts and directs them wisely. B may not have been informed of their significance, may have had their direction interfered with in childhood or in youth by many things and thereby gets into a jam at some period in life.

Above the instinctive level are other phases of growth and development. Few stop to realize how much childhood experiences both pleasant and unpleasant affect us as individuals. We comment on them in children. We speak of how they will affect those children when they grow up. We see signs of childhood traits in our relatives and friends now grown up in years at least. Yet we stick our heads in the sand when it comes to a recognition of these traits in ourselves. Child psychologists in recent years have exclaimed at great length over a fact proclaimed by Wordsworth more than a hundred years ago that "the child is father to the man."

A had the fortunate experience of what Wordsworth called "a happy childhood." His parents didn't have to have money but they were interested in him. He had something to eat, a place to sleep, clothes to wear. He had the chance to be with other children, to run, play, fight, to know animals and flowers, to find out about things without being too often frightened about them. As his horizon increased his

curiosity increased. He went to school and not only learned to satisfy his curiosity by knowing about things but also learned how to get along with others. He had discipline at home and in school and accepted it.

B started out with the same set up as A. As a baby his rest was interrupted to show him off. Parents and admiring relatives fed him, got things for him, did anything rather than have him cry. It took him a long time to get out of diapers and he had trouble at night. He was told the bogey man would get him if he cried at night and consequently had night terrors and terrifying dreams all through childhood. He didn't like this and wouldn't eat that. He wanted his own way and would have had fits of temper to get it, therefore usually got it rather than have the family have to stand for such an outburst. Is it surprising that when he started to school he had trouble doing things for himself, had trouble with his lessons, shunned other children, became sensitive? Then he had a severe illness, was sick a long time. This led to withdrawing from the world and building up a fairy world of his own where everything was lovely. He was all primed for a nervous reaction, an inferiority complex, perhaps a complete withdrawing from the real world into an imaginary world of his own.

An acute illness with the natural anxiety of parents, relatives and friends, the need for special attention, special articles of food may be an intercurrent factor in the life of the child. This is true not only from the aspect of the effect of the illness on the general state of health but also for our subject in its effect on the patient's attitude. Perhaps he has grown out of the dependency of infancy, has begun to develop that independence which we both desire and regret to see in our children. The illness has put him in the center of the stage as he was when a baby. He had to have special attention and unless carefully managed may find it hard to leave the spotlight. Convalescence needs as expert management in some instances from this angle as from physical care. Fortunately this is not often true for acute illness is more or less accepted for children and by children rather philosophically, as with measles which "everybody has" for instance, yet it has been seen to be one cause of nervousness.

Another hangover from another level of consciousness is that of superstition, myth and magical belief. This comes from the time of primitive man who interpreted what he saw going on about him in what seem to us queer ways. Yet we all have our own superstitions. Many of us who went to France have the one about three lights from a match. We all know that a black cat crossing the road isn't actually going to cause us harm yet we all hate to see one on the road ahead of us. We turn to look to be sure that it wasn't a black cat or if it was we make some comment that we hope makes us feel better.

This dependency of human beings has developed into quite a racket. Mysticism, superstition or magic leads many people to consult spiritualists, palmists, astrologers and seventh sons of seventh sons. It is part of that feeling of dependency that comes at times to grown ups when other things seem lost. It gives them something to hold on to. It may come in the intellectually over developed or the emotionally overstimulated. I do not question the sincerity of some of those who follow this type of work. Others realize it is a racket, go into it deliberately for their part of the spoils, and prey on these variegated emotions.

A may have these superstitions. If he does he recognizes them as things that have come down to him and doesn't let them interfere with his daily life. B is almost made sick at the thought of them, develops mannerisms, a facial tic or purposeless movement of the hands or repeated washing of his hands. His signs of nervousness of this type swing on from these little things to make him a dirt chaser or a germ fearer. That affects the whole day's work and life.

Education helps get rid of some of the childish ideas, helps clear up some of the superstitions, but is not the whole story. One does not have to be an intellectual giant to have poise. We have all known warped intellects whose emotions needed educating more than their intellects. Their attitude towards themselves, their families, their world, their God was so unbalanced as to make them "nervous wrecks." They can't find peace, content or happiness. Some of the most well-balanced people I know have had little education. Knut Hansum in his novel "Growth of the Soil" makes the chief character

a hard working Norwegian farmer with many obstacles to overcome but a well poised person.

There are three adaptations or ways of meeting things that A has to make to be considered a well poised person. If B fails in any one of these he has reason for his nervousness, if he fails in all he may be more than nervous, he may become mentally deranged.

The first of these is social adaptation, the ability to get along with people. A went through a perfectly natural period when younger when he was rather seclusive, self-conscious, given to day dreaming. He was growing rapidly, was acutely conscious of his growing and developing body but scarcely knew what to do with his hands or his feet or himself. He wasn't very tolerant of the ideas of others but was devoted to leadership as expressed in the form of some teacher, scoutmaster, team captain or friend. He was given the chance to express himself at home, at school, in his crowd. He developed confidence in himself, a feeling of team play and forgot in his interest in what he was doing, to think that other people were looking at him. So he acquired the ability to get along with others, to live in the world of people.

B, however, because he'd been frightened badly about something when he was little didn't have as much good fortune in his development. He couldn't let himself go with others. He got mad too easily and if he couldn't be pitcher wouldn't play ball but took his things and went home. He began to withdraw from the crowd. He realized he wasn't up to doing some things but became awfully "cocky" about what he could do. He developed a first-class inferiority complex though he tried to cover it up with a cocksureness that does not deceive a crowd of his own age or a psychologist or anyone but himself. He was terribly self-conscious and felt that he was continually under observation. Then later on this feeling of observation increased to a feeling of persecution which is bad mental hygiene. Two of the most unfavorable forms of mental disease have this as their underlying type idea.

The next adaptation that A has and B may or may not have is that towards a potential mate or life partner. This is tied in of course with the instinct of preservation of the race mentioned previously. However, this adaptation has more to do with the adult attitude. H. Crichton Miller says, "From the point of view of character development it matters relatively little whether the boy or girl ultimately marries but it matters intensely whether he or she is psychologically adjusted to the potential mate and to the conception of parenthood."

A went through the stages of first interest in his or her parents, then interest in members of his or her own sex when if a boy, girls were sissy and no good, or if a girl, boys were tough and never washed. Later, as Master or Miss A started to grow up, each became normally and consciously aware of the opposite sex. This interest at first general, eventually settled down to one person if marriage occurred, or remained general and adequate and the devotion to some creative work took its place instead.

B may have carried over a parent complex from childhood, or may never have developed the interest in the opposite sex but was too dominantly interested in his own or her sex. He or she may have gone ahead and married without being ready for it because others wanted marriage. Then some of the calamities taken up in the discussion of the effect of the maladjustments of the instinct mean nervousness often of a severe degree.

A's third adaptation or one of B's possible misadaptations is towards the infinite. Church denomination is not of importance in this. Religion is an emotional experience. Most young people have their religion presented to them. It may not take with some but most hold on to some wonder, some awe, some reverence. A may have been one of these or he may have worked out his own ideas of religion based on teaching and experience. At least he worked it out and carries it along with him.

B may have been impressed with a religion of fear, developed a fear of religion, thrown it all away and then awakened to a lost feeling. Ideas of sin either real or imaginary set up such a distracting chain of thought that the whole world looked dark and profound nervous symptoms appeared.

It can be seen from these different headings that poise is not the result of any one thing.

Heredity plays a part. This is both direct from the family tree and indirect through instinctive tendencies and responses from our primitive ancestors, man and animal. Childhood experiences, training and education are more important features. Learning how to get along with people generally, and with people of the opposite sex more particularly is an essential. A realization of the presence in life of an infinite power is a factor.

Poise represents different qualities at different ages. We have all seen well balanced children and young people as well as adults. A is not conscious of being poised nor of how or when he or she acquired this fortunate property. It is like a state of bodily health for it really is mental health. One is not aware of it except for a feeling of well being. It is only when disturbed in one way or another that its absence is noted and B is seen with us whether as a child or grown up.

If B is a grown up there is a group of characteristics that is pretty apt to be found. This is a carry over from childhood or youth of fears, prejudices, inability to get along with people, self-consciousness, feeling of inferiority, tendency to day dream. A has had some or many of these but has let go of them as a part of really growing up, or else knows they are there and uses them to good purpose. B is an adult in years, perhaps in intellectual accomplishments, but is still a child or youth in some responses to the job of living in the world of people and doesn't know it. Try to tell him and he gets mad, leaves in a huff and won't play ball. If B really has the desire to be helped and the ability to grasp it an explanation of some of these responses by a physician is often the most important thing in curing the nervousness. At least it can help him or her to "stand up and take it" if the problem is one where no other solution can be worked out. Thus B's nervousness can be treated and a degree of poise regained.

Physicians, psychologists and laymen as a whole are interesting themselves more and more in the functions of the nervous system as shown in the way a person gets along in the world and in mental health. The National Committee for Mental Hygiene is a national organization for mental health founded in 1909. There are branch groups in many states that are active in this field. The Illinois Society for Mental Hygiene published several years ago a list of precepts that I think are of value in the search for poise and the cure of nervousness. They are:

1. Pay Attention: Ability to think of the present task results in mental efficiency.

2. Cultivate Courage: Timidity, fearfulness, lack of self-confidence indicate need of mental hygiene.

3. Seek Self-Control: Not by repression of love, hate, fear, anger and other emotions but diversion of these emotions into other channels through wholesome activity.

4. Live in the World of People: Avoidance of others, inability to adapt to groups, lack of thought for others, prevents the cultivation of mental hygiene.

5. Develop Serenity: Confusion in work, play, study, conflict or ambition with achievements, conflict of thought and feelings lead to a lack of mental health.

6. Roll Your Own: Ready made toys, ready made music, ready made thoughts prevent the cultivation of some of the essentials of mental hygiene.

7. Use Your Mind: The exercise of the mind is as important to mental health as physical exercise is to physical health.

8. Live Life: Escaping from unpleasant situations through evading them, building up defenses, avoiding life is poor mental hygiene.

9. Keep Well: Mental health is related to physical health.

10. Train Your Child Early: Tantrums, jealousy, whining, finicky eating, irregular sleeping, lack of toilet habits, overdependence indicate need of mental hygiene.

I like to think of poise as a dynamic moving part of life. It is not static and immovable. That would be like a rod held at either end. A balanced rod is dynamic, can move either way but tends to swing back to its steady position. This may be a mixture of mechanics and medicine but it does bring us again to our definition of poise, "a state of being balanced."

WHY HOSPITALIZATION OF NON-SERVICE CONNECTED CASES?

ELMER W. MOSLEY, M. D.
Department Surgeon, Department of Illinois, American Legion
CHICAGO

Mr. Chairman and Members of the Illinois State Medical Society: The subject assigned to me, why hospitalization of non-service connected cases, seems to be in error. I believe what you are interested in, is why the non-service connected case that is able to pay is hospitalized, and I assure you this is a very difficult question to answer. I am sure that every one here could answer this to his own satisfaction, and I have eventually arrived at the answer for myself in just three words, "I don't know." In defense of the statement that I do not know, I would like to take you with me on a little journey through the channels that the ex-service man has to travel before he enters a hospital. When he enters the hospital he certifies when he signs the government form K 310 in substance, that he has not sufficient funds for his own medical care, and the penalty for falsifying in this statement relative to his financial condition carries with it a definite penalty which, I am sure none of us would like to have imposed upon us. Such a certificate automatically perhaps releases the heads of those institutions from any further worry or investigation, but, have we the right to charge them with a previous knowledge, that the certificate is false.

In the State of Illinois, we have some 75,000 Legionnaires, and the hospitals are necessarily filled with 75% of the personnel non-service connected cases; however, in my superficial investigation, I found that less than 14% might have been able to pay for their own care, and of the 14% in question, 9% had been in various clinics, hospitals, institutions and other groups of medical men in search of their own health, and in questioning them as to the change, it was because of the fine buildings that the government had constructed, of the wonderful equipment that had been placed in them, and of the fine personnel of the hospital, that they have turned to them as a last resort in search of their health.

Therefore, you see that in a measure at least, we ourselves are responsible, and as I see the problem today, it is one for the Medical Commission of the American Legion, State of Illinois, to go forward with the plan to extend the Medical Commission to every state in the Union, so that we may insist on having at least one member of the Medical Commission sitting in as a member of the Rehabilitation Committee, that further by our activity the State Department Commanders shall refer medical problems to the Department Surgeon for consideration before recommendation and adoption. To do this, we must have the co-ordinated help of every veteran in the State of Illinois belonging to this society. At a little gathering in Chicago some time ago, where some 1,500 doctors were eligible to attend, only a handful turned out. Am I to assume that only the minority are interested in the problems that confront us, and, if this be the truth, have we any right to complain? I think those of you who are in a position to do so, should go back to your posts, and feel it your duty to be elected a state delegate to the convention this year, and let us try as medical men to carry through to the National Convention as a majority.

Read before the Veterans Service Committee Dinner, Eighty-fifth Annual Meeting, Illinois State Medical Society, Rockford, May 21, 1935.

LINCOLN'S FAREWELL ADDRESS

Great crowds were gathered at the dedicatory services held at Gettysburg, on Nov. 19, 1863, and about noon Edward Everett began his masterly oration, on which he had been occupied for weeks. It was then President Lincoln's time to address the multitude. With no opportunity, except a few hours before reaching the battlefield on the train, to compose a speech worthy of the momentous occasion, what could he say that had not been said?

Holding in his hands the two pages of manuscript he had written with pen and partly with pencil, President Lincoln delivered the following in less than five minutes. In scarcely 300 words uttered there fell from his inspired lips an address which will go down through all history as being one of the greatest ever recorded:

"Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field as a final resting place for those who gave up their lives that the nation might live. It is altogether fitting and proper that we should do this. But, in a larger sense, we can not dedicate, we can not consecrate, we can not hallow this ground. The brave men, living and dead, who struggled here

have consecrated it far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here. It is for us, the living, rather to be dedicated to the great work remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth."

Society Proceedings

COOK COUNTY
CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday October 23, 1935

What the Medical Profession Can Do to Reduce Automobile Accidents. Frank J. Jirka, Director, Department of Public Health, Springfield, Ill.
Head Injuries. A. Verbrugghan.
Discussion. Harry Jackson.
Spinal Injuries. George G. Davis.
Pelvic Injuries. Wm. R. Cubbins.
Discussion. Carlo S. Scuderi.
Chest and Abdominal Injuries. Roger T. Vaughan.
Discussion—Chest. Ralph B. Bettman.
Abdomen. Raymond W. McNealy.

Regular Meeting, Wednesday, October 30, 1935

First Aid in Eye Injuries. Thomas D. Allen.
Eye Complications of Acute Exanthemata in Children. Richard C. Gamble.
The Recognition of Glaucoma. Harry S. Gradle.
The Diagnosis of Iritis. Sanford R. Gifford.
The Etiology of Iritis. Frank Brawley.
The Treatment of Iritis. Samuel J. Meyer.
The Treatment of Corneal Ulcer. G. Henry Mundt.
Open Discussion.

Personals

Dr. Max Thorek addressed the Chicago Medical Woman's Club on Wednesday, October 9, 1935, on the "Rationale of Electrosurgical Obliteration of the Gall Bladder." (Report of 147 cases).

Dr. E. Lee Dorsett, St. Louis, Mo., addressed the Madison County Medical Society on the subject of "Conservative Treatment of Eclampsia," at Madison, Ill., October 4, 1935.

The Chicago Pathological Society was addressed, October 14, among others, by Dr. Percival Bailey on "Relations of the Pathologist to the Clinic."

Speakers before the Chicago Tuberculosis Society, October 11, were Drs. Frederick Tice and Allan J. Hruby on "Progress in Collapse Therapy."

Dr. Francis N. Orr has resigned from the staff of the Lincoln State School and Colony, Lincoln, after four years' service, to engage in private practice.

Dr. Edward Lee Dorsett, St. Louis, addressed the Madison County Medical Society at Madison, October 4, on "Conservative Treatment of Eclampsia."

Dr. Wendell D. Little, Indianapolis, discussed "Surgical Conditions of the Abdomen," before the Vermilion County Medical Society, Danville, October 1.

Economics was discussed at a meeting of the Chicago Society of Industrial Medicine and Surgery, October 16, by Drs. Felix M. Jansey, Thomas P. Foley and John G. Frost.

Speakers before the Chicago Neurological Society, October 17, included Drs. Isidore Finkelman and William Mary Stephens, Elgin, Ill., on "Heat Regulation in Chronic Encephalitis."

The staff of the Sarah Morris Hospital for Children of the Michael Reese Hospital presented the program of a clinical meeting before the Chicago Pediatric Society, October 15.

Dr. Jacob P. Greenhill has been elected head of the department of obstetrics at the American Hospital of Chicago.

Dr. Leo M. Czaja has been appointed general superintendent of the Municipal Tuberculosis Sanitarium.

At a meeting of the Chicago Society of Allergy, October 21, Dr. Samuel M. Feinberg discussed "A Study of Molds and Their Relation to Allergic Diseases," and Dr. Francis L. Foran opened a discussion on the 1935 hay fever season.

Dr. Frank D. Dickson, Kansas City, Mo., discussed "Low Back Pain with Particular Reference to the Part Played by Congenital Abnormalities," before the Chicago Orthapaedic Society, October 11. Dr. Hershel I. Smith spoke on "Osteitis Fibrosa Cystica."

A symposium on embryology of the female pelvis in its relation to gynecology and obstetrics was presented before the Chicago Gynecological Society, October 18; participants were Leslie B. Arey, Ph.D., Dr. Otto F. Kampmeier and Dr. Arthur K. Koff.

Dr. Olin West, General Manager and Secre-

tary of the American Medical Association, Chicago, addressed the DeWitt County Medical Society, Clinton, September 23, and was guest of honor at a dinner.

Included among promotions recently announced at Loyola University School of Medicine are those of Dr. Morris A. Glatt from clinical associate to assistant clinical professor of otorhinolaryngology, and Dr. Jacob P. Greenhill from associate clinical professor to clinical professor of gynecology.

Dr. Ernst A. Pohle, Madison, Wis., discussed "Roentgen Therapy in Leukemia, Hodgkins and Allied Diseases with Special Consideration of General Body Exposure," before the Chicago Roentgen Society, October 10. Dr. Richard H. Jaffe spoke on "Bone Changes in Leukemia."

Dr. Arthur L. Tatum, professor of pharmacology, University of Wisconsin Medical School, Madison, discussed "Studies in Specific Arsenical Chemotherapy," October 25, before a joint meeting of the Institute of Medicine and the Chicago Society of Internal Medicine.

The St. Clair County Medical Society was addressed, October 2, in Belleville by Dr. T. Wistar White, St. Louis, on "Prevention and Treatment of Certain Communicable Diseases," and in East St. Louis, October 3, by Dr. Charles B. Reed, Chicago, on "Questions Facing Medicine Today."

At a meeting of the La Salle County Medical Society at Ottawa, September 26, speakers were Drs. Edward L. Cornell, Chicago, on "Fundamentals of Obstetrics"; Charles E. Galloway, Evanston, "Timely Pointers on Obstetrical Delivery"; and Irving F. Stein, Chicago, "Lipiodol as an Aid in Gynecologic Diagnosis."

Dr. Gatewood addressed the members of Will-Grundy County Medical Society, October 2 on the subject "New Lamps for Old."

Frederick R. Schmidt addressed the Bureau County Medical Society, October 1, subject, "Nutrition and Skin Diseases."

W. A. Newman Dorland addressed the Bureau County Medical Society, October 1, subject, "The Origin of Ovarian Tumors."

J. P. Greenhill gave a paper on "Recent Progress in Obstetrics," before the members of Sangamon County Medical Society at Springfield, October 3.

Aaron Arkin gave a paper on "Present Knowledge of Blood Dycrasias" before Will-Grundy County Medical Society, October 16.

Hugo B. Rony addressed McHenry County Medical Society, October 17, on "Common Forms of Minor Endocrine Disturbances."

Herman L. Kretschmer presented a paper on "Prostatic Obstruction from the Life Insurance Point of View," at the Annual Convention of the Association of Life Insurance Medical Directors at the Waldorf-Astria in New York City on October 17.

Perry J. Melnick, former Chief Resident Pathologist at the Cook County Hospital, has been appointed Pathologist to the Springfield Hospital, Springfield, Illinois.

George deTarnowsky gave a paper on "Acute Abdominal Surgery," before the Will-Grundy County Medical Society, October 23.

James H. Hutton spoke on "Response of Essential Hypertension to Light Doses of X-Ray," at the meeting of the Mississippi Valley Medical Society at Quincy, Ill., on October 4. On October 5 Dr. Hutton addressed the Pennsylvania Railroad surgeons in Chicago on the same subject.

Robert A. Black gave a paper on "Rheumatism," before the members of Will-Grundy County Medical Society, October 9.

Cleveland J. White addressed the Fox River Valley Medical Association at Fond du Lac, Wis., on October 12 on the subject, "Treatment of Acne-Form Eruptions of the Face."

Harry L. Huber was guest speaker at the Michigan State Medical Society at Sault Ste. Marie, on September 25. His subject was "Allergy and the General Practitioner." While there he gave a paper on "Allergic and Non-Allergic Rhinitis," before the Michigan State Ophthalmological and Otolaryngological Society.

News Notes

—Lead fumes from a kitchen stove where storage battery casings were being burned as fuel caused the death of two children and the serious illness of five others in a family of eleven persons, the Chicago Tribune reported October 20.

—Dr. Richard Jaffe opened a series of pathologic conferences at the Cook County morgue, October 18, on current material from the chil-

dren's department of Cook County Hospital. Conferences are scheduled for November 15, December 13, January 10, February 7, March 6, April 3, May 1 and May 29.

—Members of Illinois State Medical Society are cordially invited to attend these lectures.

—The Iroquois Memorial Hospital was opened October 17, as a branch of the Municipal Tuberculosis Sanitarium; it will be devoted exclusively to collapse therapy of tuberculosis. The hospital which has been closed since January 1 for lack of funds, was built in 1910 as a memorial to those persons who died in the Iroquois Theater fire in December, 1903.

—Fred Conrad Koch, Ph.D., professor of physiological chemistry and chairman of the department of physiological chemistry and pharmacology, University of Chicago, delivered the seventh annual William T. Belfield Lecture before the Chicago Urological Society at the Palmer House, October 24, on "The Biochemistry and Physiological Significance of the Male Sex Hormones."

—Solicitation of funds for beneficiaries of the Veterans' Administration through "liberty balls" and similar affairs has not been authorized, according to a statement from Dr. Thomas Hugh Scott, manager of the veterans' facility at Hines. This announcement was made so that the public may not be misled and induced by false representation to respond to telephone solicitation for the sale of tickets to affairs purporting to be for the benefit of "crippled soldiers" who are patients in the Hines institution.

—The Chicago Woman's Club, through its cancer research committee, offer a series of talks on cancer on five consecutive Thursday mornings, beginning October 24. The course is intended particularly for lay women, it was stated. Dr. Frank L. Rector, Evanston, Ill., field representative, American Society for the Control of Cancer, presented the first lecture on "The Story of Cancer." Other speakers will be:

—Dr. James P. Simonds, professor of pathology, Northwestern University School of Medicine, October 31, "Scientific Aspects of Cancer."

—Maud Slye, director, cancer laboratory, Otho S. A. Sprague Memorial Institute, University of Chicago, November 7, "Transmission of Cancer Through Inheritance."

—Dr. Fred L. Adair, professor and chairman of the department of obstetrics and gynecology, University of Chicago, "Cancer of Female Structures."

—Dr. Max Cutler, director, tumor clinic, Michael Reese Hospital, "Cancer of the Breast."

—Dr. Joseph C. Beck, associate professor of laryngology, rhinology and otology, emeritus, University of Illinois College of Medicine, was guest of honor at a dinner marking his sixty-fifth birthday and the completion of thirty-five years in the practice of medicine, September 26, at the Lake Shore Athletic Club. About 200 persons attended the dinner, which was given by friends and former students of Dr. Beck. Dr. Frank J. Novak Jr. presided; the speakers included Drs. Harry W. Woodruff, Joliet; Ralph A. Fenton, Portland, Ore.; William P. Wherry, Omaha; Burt R. Shurly, Detroit; Samuel J. Kopetzky, New York; Samuel Iglauer, Cincinnati; Otto Joachim, New Orleans, and Louis Ostrom, Rock Island. Dr. Beck graduated from the University of Illinois College of Medicine in 1895. He is a past president of the American Academy of Ophthalmology and Otolaryngology and was chairman of the Section on Laryngology, Otology and Rhinology of the American Medical Association in 1919-1920.

—The Chicago Institute for Psychoanalysis announces a special course for physicians engaged in research work on psychogenic organic disturbances. The course opened October 1, with a lecture by Dr. Walter L. Palmer, of the University of Chicago, on "Physiology and Clinical Pathology of Peptic Ulcer, Ulcerative Colitis, and Functional Bowel Disturbances." Dr. Palmer spoke October 8 and October 15. Other lecturers in the series are:

Dr. Ralph W. Gerard, University of Chicago, October 15, 22, 29; Recent Progress in the Physiology of the Nervous System (Action Potentials, Thalamus and Vegetative System).

Dr. Ben Z. Rappaport, University of Illinois, October 22, 29, November 5; Allergy and Bronchial Asthma.

Dr. Roy R. Grinker, University of Chicago, November 5, 12, 19; Clinical Pathology and Theory of the Epilepsies.

Broda O. Barnes, Ph.D., University of Chicago, November 26, December 3; Physiology of the Endocrine Glands.

Dr. Solomon Strouse, Rush Medical College, December 10, 17; Clinical Pathology of Endocrine Disturbances.

Dr. M. Herbert Barker, Passavant Hospital, January 7, 14; Physiology and Clinical Pathology of Essential Hypertension.

Dr. Erwin P. Zeisler, Northwestern University, January 21, 28; Clinical Pathology of Eczema and Urticaria.

Deaths

Alden Alguire, Belvidere, Ill.; Rush Medical College, Chicago, 1897; a Fellow, A. M. A.; member of the Radiological Society of North America; past president of the Boone County Medical Society; aged 70; died, August 23.

Werner Lothar Benishek, Aurora, Ill.; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1926; a Fellow, A. M. A.; director of the x-ray department of the Copley Hospital; aged 33; was found dead, September 30, or poison, self-administered.

Svenning Dahl, Chicago; College of Physicians and Surgeons of Chicago, 1890; member of the Illinois State Medical Society; formerly on the staff of the Norwegian-American Hospital; on the staff of the Lutheran Deaconess Hospital; aged 78; died, August 18, of chronic myocarditis and arterio-sclerosis.

M. P. Lyla Harker, Oak Park, Ill.; Loyola University School of Medicine, Chicago, 1923; aged 48; died suddenly, July 27, of cerebral hemorrhage.

William James Hickson, Chicago; University of Pennsylvania Department of Medicine, Philadelphia, 1900; a Fellow, A. M. A.; director of the medical research department, Training School, Vineland, N. J., 1912-1915; psychopathologist to the psychopathic laboratory of the Municipal Court of Chicago, 1914-1929; aged 61; died, October 4, of heart disease, while at his summer home in Gloucester, Mass.

James Charles Holdsworth, Chicago; College of Physicians and Surgeons, Baltimore, 1896; served during the World War; aged 64; died, August 17, in the Veterans Administration Facility, Hines, Ill., of subacute bacterial endocarditis.

Harvey Louis Langlois, Kankakee, Ill.; University of Illinois College of Medicine, Chicago, 1917; a Fellow, A. M. A.; aged 44, on the staff of St. Mary Hospital, where he died, August 22, of pneumonia.

Vergil Alvin Ross, Champaign, Ill.; Rush Medical College, Chicago, 1917; a Fellow, A. M. A.; served during the World War; assistant health officer and senior medical adviser to men at the University of Illinois; aged 42; was found dead in bed, August 26, of coronary thrombosis.

George Frederick Stericker, Springfield, Ill.; University of Leeds School of Medicine, and M.R.C.S., England, 1883; L.M.S.S.A., London, 1884; a Fellow, A. M. A.; for many years president of the Springfield Tuberculosis Association; on the staffs of St. John's Hospital and the Springfield Hospital; aged 73; died, September 14 of subacute bacterial endocarditis.

Thomas W. Toler, Astoria, Ill.; Northwestern University Medical School, Chicago, 1892; aged 64; died, July 10, in the Peoria (Ill.) State Hospital, of bronchopneumonia, following a fracture of an arm received in a fall and burns incurred the following day.

William Hamlin Wilder, professor emeritus of ophthalmology at Rush Medical College, died at his home in Chicago, September 24, of cerebral arterio sclerosis and paralysis agitans, aged 74. Dr. Wilder was born in Covington, Ky., and received his early education at Farmers College, College Hill, Ohio. He received the B.A. degree at Belmont College in 1878 and his medical degree from the Medical College of Ohio, Cincinnati, in 1884. He also pursued postgraduate study in the University of Göttingen in 1889 and the University of Vienna in 1890. He began the practice of medicine in Cincinnati in 1884 and removed to Chicago in 1892. In 1907 he became professor of ophthalmology at Rush Medical College and was made professor emeritus in 1926. He served as honorary surgeon to the Illinois Eye and Ear Infirmary and as ophthalmologist to the Presbyterian Hospital. He was chairman of the Section on Ophthalmology of the American Medical Association in 1907-1908 and a member of the House of Delegates during 1926, 1927, 1928, 1930 and 1931. He was a member and also president in 1931 of the American Academy of Ophthalmology and Otolaryngology; member of the American Ophthalmology Society and president in 1918; member and vice president of the Illinois Society for the Prevention of Blindness, and fellow of the American College of Surgeons. In May 1935 Dr. Wilder was awarded the ninth annual Leslie Dana Gold Medal, given by the St. Louis Society for the Prevention of Blindness for outstanding contributions in the preservation of sight. During the World War Dr. Wilder served as a major in the Medical Reserve Corps. Dr. and Mrs. William H. Wilder established recently the William H. Wilder Fellowship in neurology in memory of one of their sons. Another son, Dr. Russell Morse Wilder, is a member of the staff of the Mayo Clinic. Dr. Wilder contributed notably to preventive medicine in the field of ophthalmology, his most significant efforts concerning trachoma, ophthalmia neonatorum and the rehabilitation of the blind. He also worked assiduously in the promotion of higher standards in ophthalmologic practice, and he was instrumental in the establishment of the American Board of Ophthalmology, giving this organization years of service as secretary.

Herbert Arthur Wildman, Sterling, Ill.; Rush Medical College, Chicago, 1926; a Fellow A. M. A.; on the staff of the Public Hospital; aged 39; died, September 22, as the result of an automobile accident.

Max Darius Wilson, Chicago; Bennett Medical College, Chicago, 1912; a Fellow, A. M. A.; aged 62; died, October 6, in the Jackson Park Hospital, of carcinoma of the colon with metastasis.

"The interest which vitamins hold for the physician is not alone in their relation to certain well-defined diseases, as scurvy, beri-beri and rickets, but rather in the fact that chronic vitamin deficiency produces numerous vague, borderline states of ill-health, which often puzzle the physician and disable the patient."

—J. S. McLester: "Nutrition and Diet in Health and Disease."

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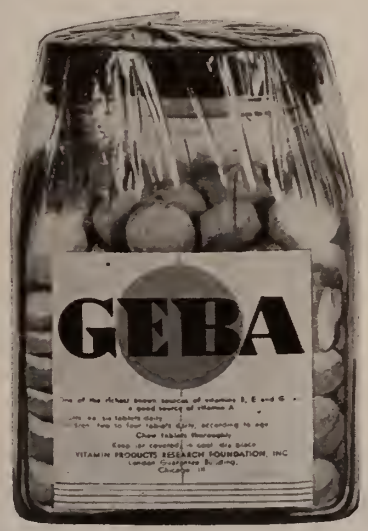
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G E B A

GEBA is unique in the field of vitamin therapy. It is one of the richest known natural sources of vitamins G (anti-pellagra), E (anti-sterility) and B (anti-neuritic). It is a good source of Vitamin A (anti-infective). Its vitamins, extracted from natural food sources, are combined in convenient tasteful *tablet* form. A special formula preserves their strength and keeps them from turning rancid.

GEBA has achieved distinction by its effectiveness in relieving and correcting illness caused by vitamin deficiency. GEBA is prescribed as a supplement to the diet for children as well as adults; it is not a medicine, not an animal product.

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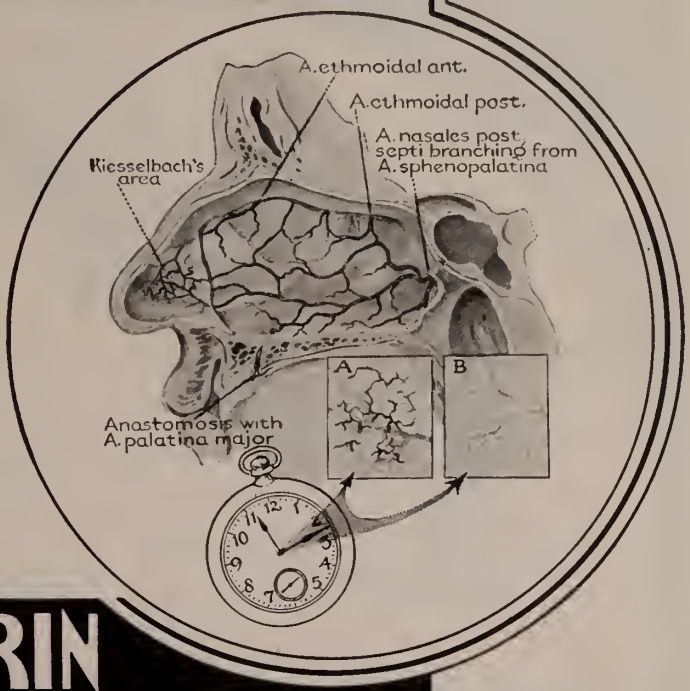
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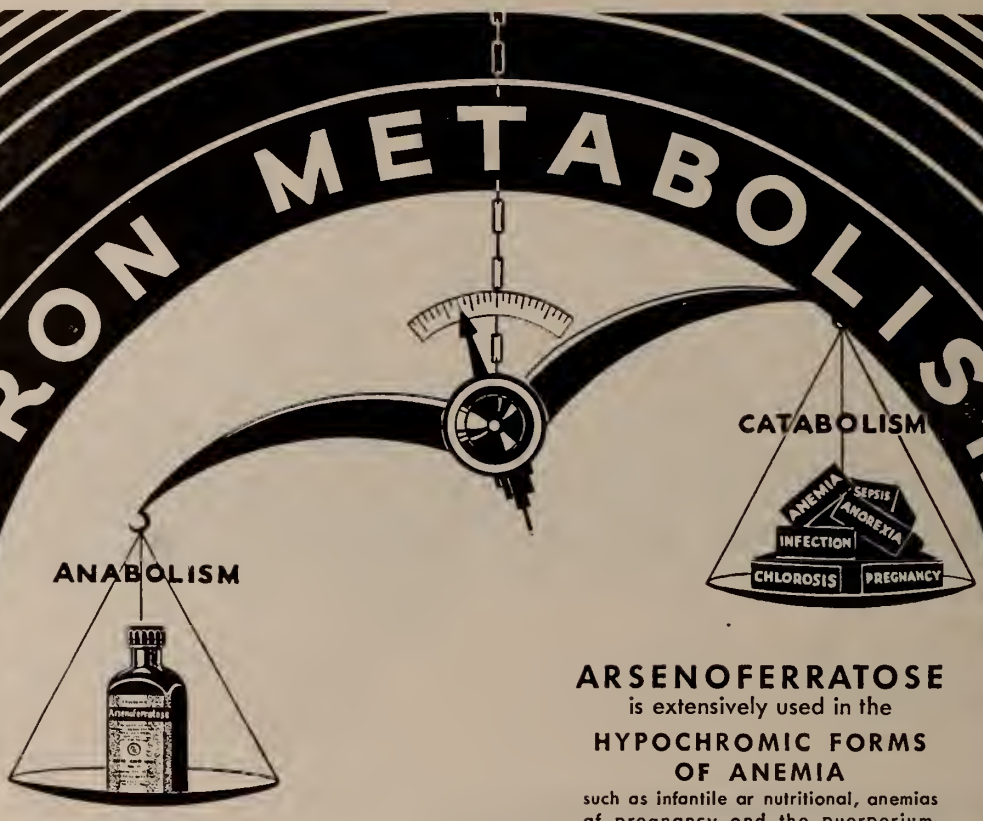
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1. Seborrheic dermatitis
   (a) Erythrodermia desquamative
2. Allergic eczema
   (a) Atopic eczema
      (1) Infantile
      (2) Chronic in older children
   (b) Contact dermatitis.
3. Mycotic eczema*

*This, of course, should not be called "eczema" but it is so often clinically undistinguishable from chronic eczema that it is probably best to include it in the group.

Dr. Irving McQuarrie reviewed the experiments of Dr. Burr (wherein rats deprived of unsaturated fatty acids developed eczema-like conditions) and emphasized the indispensable requirements in animal nutrition for unsaturated fatty acids, in particular linoleic and linolenic.

Dr. McQuarrie indicated the transfer of the experimental work on rats to the treatment of eczematous babies by Dr. Hansen with highly encouraging results.

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PUERPERAL GYNECOLOGY. By J. L. Bubis, M.D. Baltimore. William Wood & Company. 1935. Price $3.50. For eighteen years Dr. Bubis has advocated and practiced profilactic repair of injuries of the cervix, anterior vaginal wall and pelvic floor resulting from childbirth. In recent years quite a few obstetricians have adopted, with notable success, immediate or semi-

(*Continued on Page* 33)

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Book Reviews

(*Continued from page* 31)

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THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc. By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Lieut.-Colonel, M.R.C., U. S. Army; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. With the Collaboration of E. C. L. Miller, M.D., Medical College of Virginia. Seventeenth Edition, Revised and Enlarged. Octavo of 1,573 pages with 945 illustrations, including 283 portraits. Philadelphia and London: W. B. Saunders Company, 1935. Flexible and Stiff Binding. Plain $7.00 net; Thumb Index $7.50 net.

In this edition the work has been brought up-to-date, several thousand of the newest terms have been added and refined. The present edition contains fifteen hundred and seventy-three pages—an increase of over a hundred per cent over the first edition.

COMMONER DISEASES OF THE SKIN. By S. William Becker, M. D. New York National Medical Book Company, Inc. 1935. Price $4.00.

(*Continued on page* 34)

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(*Continued from page* 33)

1000 Questions and Answers on T. B. by Fred H. Heise, M. D. Journal of the Outdoor Life. New York. 1935. Price —.

In this work the author has selected about 1000 queries, representing the most frequent and important inquiries, for answer in a single volume. Grouped in appropriate subdivisions, answered with simplicity and precision these questions constitute a textbook of tuberculosis of new and refreshing type.

Abnormal Arterial Tension. By Edward J. Stieglitz, M. D. New York National Medical Book Company, Inc. 1935. Price, $4.00.

This work is just off the press and is the first of a series of six medical monographs.

Diagnosis and Treatment of Skin Diseases. By Jacob Hyams Swartz, M. D. and Margaret Gilson Reilly, R. N. New York. The Macmillan Company. 1935. Price $3.50.

This work differs from other works on dermatology in that it has been produced by the collaboration of a trained dermatologist and a nurse who has specialized for many years in the nursing care of skin diseases.

The work is well written and will prove useful to both students and practitioners of medicine.

The Stomach and Duodenum. By George B. Eusterman, M. D., F. A. C. P., Head of Section in Division of Medicine, The Mayo Clinic, Professor of Medicine, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; and Donald C. Balfour, M. B., M. D. (Tor.), LL. D., F. A. C. S., F. R. A. C. S, Head of Section in Division of Surgery, The Mayo Clinic, Professor of Surgery, The Mayo Foundation for Medical Education and Research Graduate School, University of Minnesota; and Members of the Staff, The Mayo Clinic and The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. 958 pages with 436 illustrations. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, $10.00 net.

The increase in knowledge of the diseases of the stomach and duodenum during the past fifty years notable example of the progress of medicine were in that period. In this work the authors and contributors have confined their discussions to such phases as have more or less direct clinical application.

The experience of the members of the staff of the clinic is represented in the case histories and the follow-up record. In this book the authors have brought the subject strictly up-to-date and a copy of this work should be in the hands of every surgeon and general practitioner.

Free Medical Care—Socialized Medicine—Compiled and Edited. By E. C. Buehler. Noble and Noble Publishers, Inc. 1935. Price $2.00.

A Textbook of Physiology. By William D. Zoethout, Ph. D. Fifth Edition. St. Louis. The C. V. Mosby Company. 1935. Price $4.00.

In this volume the author has very extensively rewritten the whole edition. The chapters on hormones, vitamins, muscle physiology, and the nervous system have been thoroughly revised and brought up-to-date. Many new editions have been added.

Personal and Community Health. By Clair Elsmere Turner, Dr. P. H. Fourth Edition. St. Louis. The C. V. Mosby Company. 1935. Price $3.00.

This work is planned for the various college-level groups. It seeks to present the essential, present day knowledge of personal and community health within available time and space limitations and with enough anatomy, physiology, and other underlying sciences to clarify and support the health teaching.



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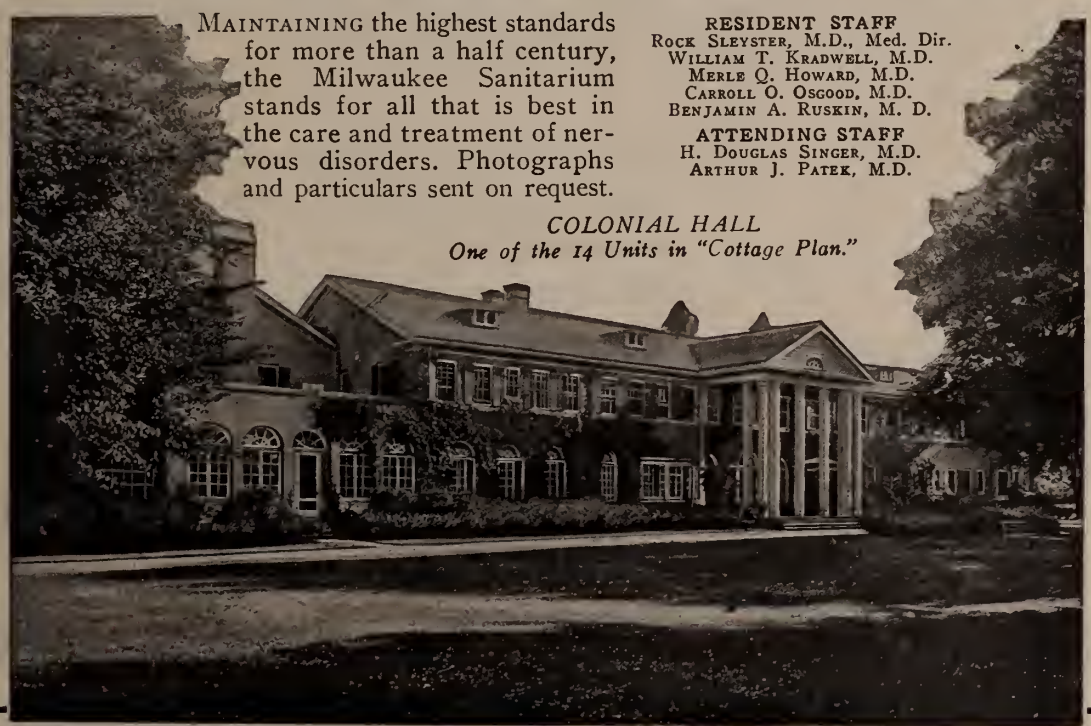
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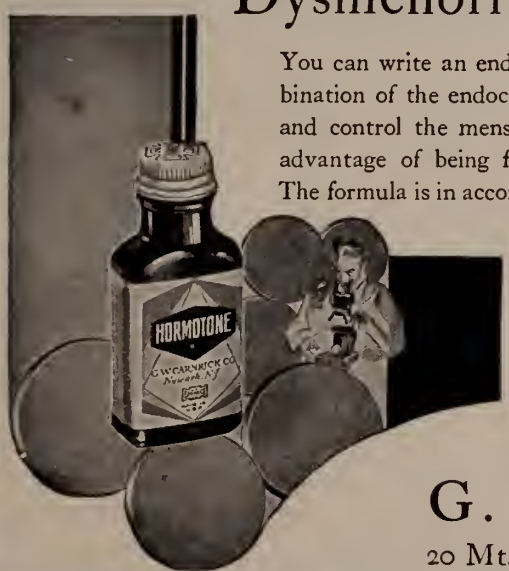
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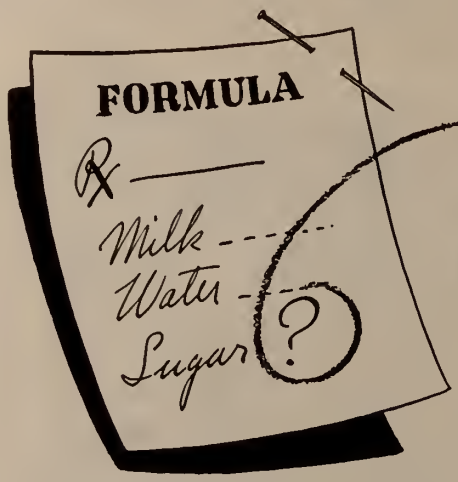
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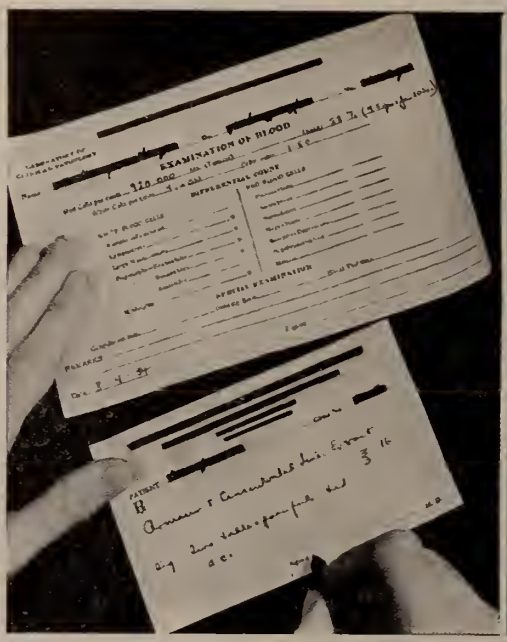
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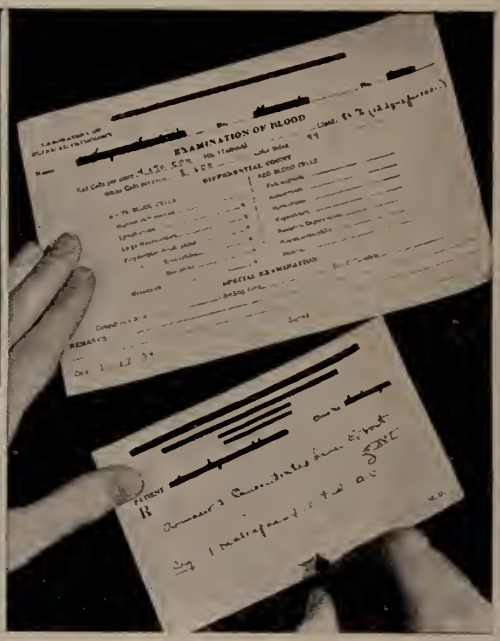
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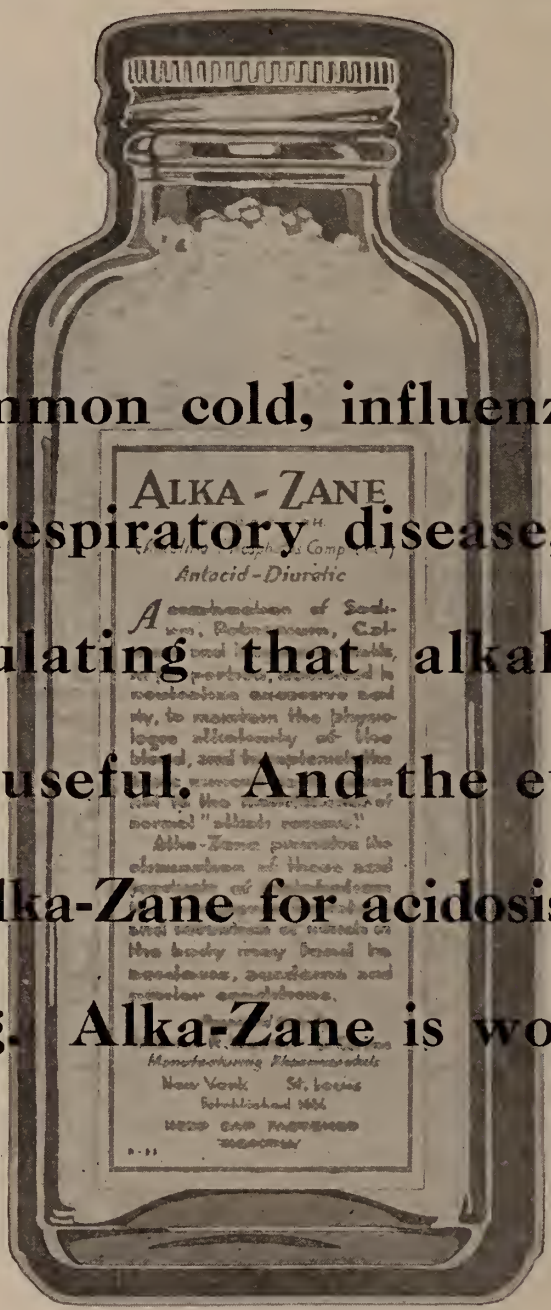
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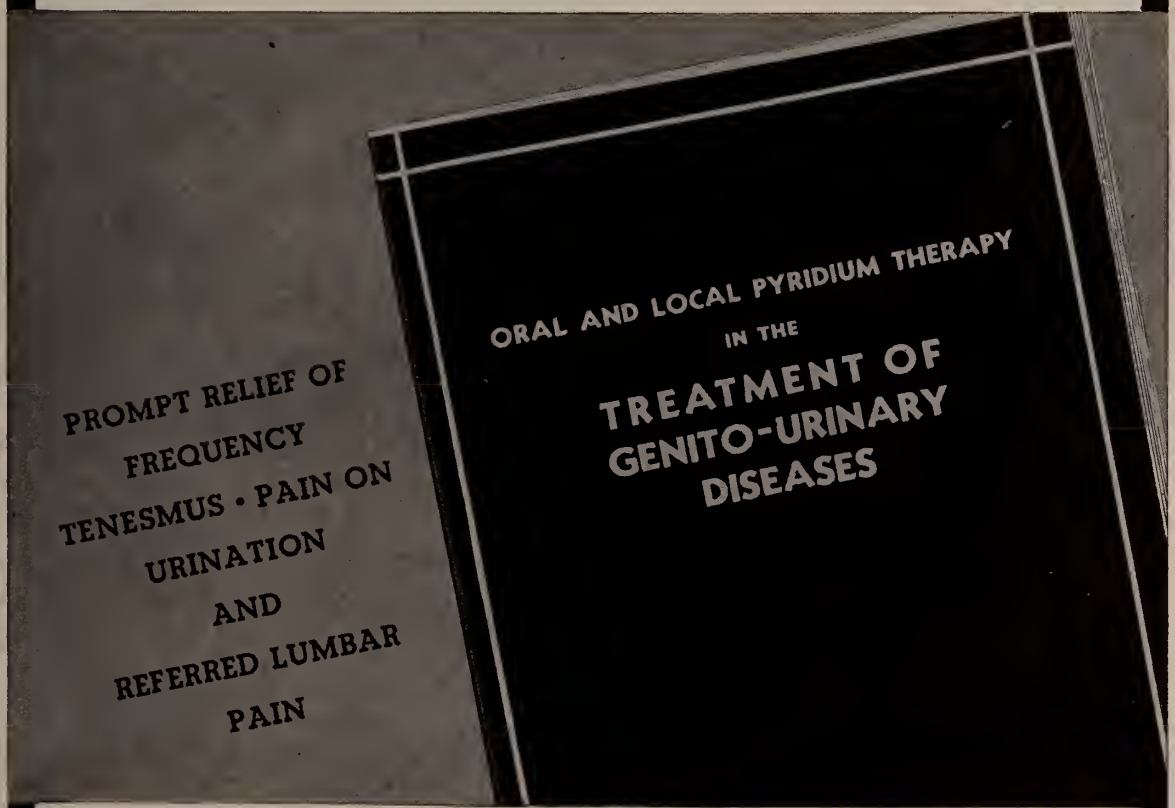
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For example, many may have wondered—but, certainly, few have inquired—as to the origin of the popular designation for tin containers. The name "tin cans" arose from an abbreviation of the term "tin cannisters" applied to them during the latter part of the last century by English manufacturers. Such a name is hardly correct, since "tin cans" are made from mild steel which has been rolled into thin sheets and coated with pure tin. Actually, the can is about ninety-eight percent iron.

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AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) 1934. Ind. Eng. Chem. 26, 758
(2) 1932. Ind. Eng. Chem. 24, 650

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 69 OAK PARK, ILL., DECEMBER, 1935 No. 6

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $8.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $8.50. Single current copies, 50 cents.

Editorial

OUR SOCIAL INSECURITY ACT

Ably called "the largest tax bill to come out of Congress," economic prophecies hold that "The Social Security Act" signed on August 14, 1935, by President Roosevelt is the most plaguesome white elephant ever set down upon any national front doorstep.

This most socialistic, communistic and absolutely un-American piece of legislation places in pawn the profits of the coming generations in a fashion that out-Russias Russia's most fantastic sovietisms. Even the most neophytic student of insurance knows that without an ample *reserve fund* with which to protect future guaranties all insurance is negligible protection. The new "Social Security Act" secures its reserves from the legitimate profits of the youth of the nation.

Apart from its inherent vaguities, excessive levies and its general profligacy, inadequacy and inexcusable extravagance, those few experts who have managed to wade through this tremendous atrocity seem agreed that it conflicts with everything conflictable and results in nothing but a lot of Bengal fire in red and green, and—another gouge into the pockets of the taxpayers. And, for what? Nobody seems, exactly, to know.

Abraham Epstein, one of the best known authorities on "Social Insurance" and since 1927 executive director of the American Association for Social Security, in a competent article in the December issue (1935) of *Harper's Magazine,* expounds with wisdom bereft of sophistry this latest theoristic endeavor of a misguided administration to "make all men free and equal," let the burden fall where it may.

On page 61, column 2, of the magazine cited writes Mr. Epstein: "As finally enacted, much of the Social Security program is not only of doubtful constitutionality but of questionable social and economic wisdom. The Act embodies all the three philosophies of government: 1. The principle of Federal grants-in-aid to States; that is, 'We'll help you finance a State plan if you'll set it up in such a way as to meet our

requirements.' 2. A Federal-State tax-offset scheme, which is to say, 'We'll levy taxes to finance the undertaking, but we'll remit them in any State which levies similar taxes of its own' and 3. A completely national plan; that is, 'We'll levy the taxes and conduct the whole enterprise.'

"The subjects covered may be classified into four categories: (a) Federal subsidies to States which adopt gratuitous pension systems for the needy, aged and dependent mothers, and the needy blind; (b) subsidies for State welfare activities such as maternity and infant care, neglected children, vocational rehabilitation and public health; (c) a Federal compulsory insurance system for old age retirement to replace gradually the grants-in-aid system; (d) unemployment insurance financed by a Federal-State tax-offset scheme. The Act sets up two separate and distinct Federal taxes on employers. Another tax is put on employees. For its functioning in unemployment insurance the Act requires the setting up of at least forty-nine additional and duplicating State and District systems of taxation."

Elsewhere in this article, entitled by Mr. Epstein "Our Social Insecurity Act," this student of economics who for a period of years was the research director for the Pennsylvania Commission on Old Age Pensions remarks:

"The dangers which lurk behind this scheme doom it from its birth. *It attempts the most ambitious program so far undertaken by any nation.* With the exception of a few exempted classes such as agriculture it covers every employer and every employee, regardless of his earnings.

"The plan contemplates the building up of the most gigantic reserve, estimated to reach over *fifty billion* dollars ($50,000,000,000.00) by 1980, or more than four times the value of all the gold reserves of the world's central banks and governments. The freezing of so much sorely needed purchasing power cannot but hamper recovery. The problem of investing such huge sums will be insuperable. No one can guarantee that such fantastical governmental credits will ever be made good. It is utopian to pledge today the America of fifty years hence. Large reserves are always in danger of being usurped by politicians for other purposes, as experience with other lands amply testifies. Should even a partial inflation wipe out some of these funds, no one can calculate the menace it will create. The unemployment insurance plan also disregards the advice not only of the staff's chief expert on unemployment insurance and practically all students of the problem, but also that of the majority of the Advisory Council. . . The Cabinet Committee was urged to follow either a completely national plan as used for the old-age contributory system or a Federal subsidy system whereby all the moneys raised through the Federal employers' tax would be returned in block to the States if they conform to minimum uniform standards, thereby avoiding all duplicating State taxes. Miss Perkins, however, insisted that no other plan but the tax-offset method be brought out by the Committee's staff. Unlike the compulsory retirement plan, therefore, the Federal Government does not set up any employment insurance plan whatever. Whether there will be nationwide unemployment insurance or not will depend on the success of the tax-offset method. The Federal Government merely sets up a tax on the total payrolls of employers with eight or more workers beginning with one per cent. (1%) in 1936 and rising to three per cent. (3%) in 1938. The moneys go into the Federal Treasury. The Federal Government then permits employers who contribute to a State unemployment insurance system to deduct the State contributions up to 90% of the Federal tax. The chief advantage claimed for this system is that it eliminated the handicaps which confront employers in States with unemployment systems against competitors in States which have no such taxes. It aims to encourage State legislation for unemployment insurance, since employers will prefer to use their tax for direct benefits to their unemployed workers rather than send it un-earmarked to Washington. Curiously enough, while seeking this result, the Act actually negates this encouragement by punishing employers every time a State law is enacted. Instead of waiving the employer's full Federal contribution, the Act remits it only up to 90%. In other words, whenever a State levies a tax below or equal to the Federal tax, the employer, in addition to filing two duplicating tax reports, must at all times pay at least 10% more of the Federal tax. Should any State tax exceed 3%,

the problem of State competition remains as unsolved as ever.

"Indeed every reason compelling Federal action in social legislation has been repudiated in the present unemployment insurance set-up. Federal action is necessary because 1. only a Federal plan can overcome the difficulties of interstate competition; 2. only the Federal government has the capacity of raising adequate revenue on an equitable basis; 3. only Federal legislation can insure national uniformity and adequate standards; 4. only a Federal act can mitigate the problem of the migratory population.

"But as pointed out above, the tax offset scheme for unemployment insurance does not entirely overcome the problems of interstate competition. Instead of making a contribution and thus utilizing the constructive means of Federal income taxation, the Government merely adds a burdensome sales tax and ACTUALLY CONTEMPLATES MAKING A PROFIT OUT OF IT. (Ed's note—Capitals are ours.) The allowances for State administration return only about half of the funds which will accrue to the Federal Treasury through retention of the 10% tax."

"More profit will accrue to the Government because the Federal tax is payable on the wages of all employes regardless of their earnings while most State laws usually exempt from contributions employes earning above certain sums (The New York law, for example, excluded all salaried workers earning above $2,500 per year). Moreover so long as any State remains without an unemployment insurance plan, the Federal Government will be pocketing the entire payroll tax. The requirement that all State monies must be turned over to the Federal Treasury only adds to the inherent difficulties, additional costs and administrative burdens as well as constitutional difficulties.

"Instead of providing for uniformity of standards, the Federal Act not only sets up no basic requirements for the proper State systems but goes out of its way to discourage this by inviting States to establish individual reserve funds and employment guarantee plans, thereby not only complicating the administration of the system but actually frustrating any hope of establishing an adequate system of unemployment insurance throughout the United States. Instead of national uniformity, the present scheme will foster a miscellany of forty-nine divergent plans which will create endless confusion, bad feeling on the part of the unemployed and disparity among the States. Already the differences in the nine State unemployment insurance schemes almost defy comparison. The Act, does not, of course, make the slightest attempt to meet the problem of the formidable interstate population which moves from State to State.

"The enactment of this slovenly program creates a fantastic situation. The Act poses not only numerous constitutional difficulties but many administrative and social and economic dangers as well. Its bungling nature was not the result of any necessity for compromise because of political expediency. Even employer groups favored a more constructive program. The Act carries the fallacious concepts of the German system to the nth degree. Not only is there no governmental contribution to unemployment insurance, but the Federal Government will actually profit secretly from the huge sales tax revenues, a thing it would never dare to do openly. In the case of old-age insurance even Bismarck nearly fifty years ago realized that a levy placed solely upon wage-earners and consumers could not provide sufficient protection against the growing problem of old-age dependency. While Bismarck added a governmental subsidy to the German old-age insurance plan, our own plan not only makes no such provisions but actually attempts to relieve the wealthier classes from a considerable share of their present burden. The Act mutilates those principles of social insurance which alone were responsible for the success of the English system. It is a confession of complete ignorance of the principles of social insurance for liberals to argue with all its faults is 'a beginning.' A beginning towards what? . . . Now a tax on payrolls is not a tax upon the owners of industry but on the workers and consumers."

And again, "As we have seen the English did provide for an increase in the purchasing power of the masses by refunding a considerable share of the national profits through social insurance. . . . The American law actually decreases the purchasing power of the masses by refunding a considerable share of the national profits through social insurance. The American Act merely sets up a system of compulsory payments by poor

Paul for impoverished Peter. The American law actually decreases the purchasing power of the masses by depriving them of immediate purchases, by relieving the well-to-do from their share of the social burden and by making the workers pay the expense of a vast administration. It is especially cruel and reprehensible to saddle upon the employed workers new and burdensome direct and indirect taxes in the face of continued unemployment amidst rising prices, mounting State and municipal sales taxes which fall largely upon the poor, and a steadily declining wage scale, considerably induced by the low WPA wages. The sharing of poverty established under the Social Security Act does not follow the British but the German examples. It is bound to lead us into similar chaos."

And again, "For a considerable time the Committee on Economic Security was not certain of the fields of social insurance which should be embodied in a bill. . . . The national clamor for old-age pensions which pervaded the country, climaxed by the noisy rackets conducted by the chiropractor, and former convict, 'Dr.' Pope, and the promoters gathered around the messianic Dr. Townsend."

And yet again "More vital than the utilities bill, the income tax bill, the relief program, or even the NRA, the Social Security Act had been passed with scarcely a ripple of attention."

Those words were prophetic. Prohibition slunk in upon us in almost exactly the same fashion. . . . "with scarcely a ripple of attention."

The Illinois Medical Journal is not interested in propaganda for any individual or institution except general welfare and the welfare of medical men and the medical profession. But it is exactly because of this interest that every doctor in the United States is urged to give careful perusal to this article by Abraham Epstein. Added to the findings of our own learned colleague Dr. Edward Ochsner, whose own book on social insurance has leaped into the ranks of the best-sellers this comment by Epstein is both heartening and elucidative.

I can close in no better fashion these citations than by quoting Senator Clark of Missouri who said, while the bill was still under debate, "The constitutionality of the proposed act is already so doubtful that it would seem to me to be a work of supererogation to bring up the question of constitutionality in regard to the present amendment."

It is well for the profession to note that this socialistic legislation is a living issue that rests by our firesides. We can ignore it no longer. Only organized medicine can win the fight that is imminent now and that will be nationally cataclysmic unless arrested. The nation has looked to its medical men for mental and physical health since the earliest days of the Plymouth colony. Can we desert the nation now? A nation mentally sick, economically deranged and physically discouraged demands the healing touch of a sane and constructive profession. The fight is ours and only by organized effort can we hope to aid in bringing the commonwealth back to pioneer sanity, peace and prosperity.

IT IS TIME THAT EVERY DOCTOR IN THE LAND PUT TWO WEATHER EYES ON CANDIDATES FOR OFFICE

Quite without exaggeration it may be written that the next two years are so "big with fate," that the destiny of civilization hinges upon the breed of government that shall dominate by eventuation.

In the last century, America has vied with England, the mother country, for the leadership of the world. This position of the English speaking races in the forefront of progress evolves from certain basic, ingrained principles widely at variance from those barbaric cultisms threatening to engulf the world. Mother England prides herself on always "muddling through" if no better mode of action affords. Certain it was that the British Empire was the first of the great nations to glimpse the light of post-war recovery. To a large extent Britain lacks American emotional sentimentalism, though no one can say that Albion's nature is wanting in protective tenderness or foresight to national preservation. Mother England has not let herself be overridden by communistic cobras, socialistic propagandists and raving "Reds" as has her most gallant child, the United States of America. Old Mother England foresees a menace unerringly, and gets rid of it with despatch. England's form of monarchical government makes this an easier task than in a democracy where speech is all too free while the overburdensome, unenforceable un-

American freak statutes that propagandists have spilled all over us, only too frequently make a farce of law and order and turn an honest citizen into a pack-bearing tax-paying drudge for political jobberyists. Prosperity may not be around the corner, but an election is. Distribution of jobs, from the White House and its grave responsibilities to jobs of hauling away dead animals in the humblest hamlet of our great United States, are soon to lie in the hands of the poorest voter on election day. In fact, there is a banner crop of election days sprouting up all over the country. It is time that every doctor in the land put a weather eye on this influential crop and two weather eyes on the voters, and go right ahead and double the ante on the candidates. The doctor can no longer sit back in scientific glory nor go blindly about the unending drudgery of his sacred service to humanity and hope to survive, either as a physician or as a man. The appalling socialistic tripe called "welfare-legislation" for which all the tax-payers and the doctor, too, is a tax-payer—and let not even the youngest interne permit this knowledge to escape him—is paying through the nose and that most bitterly, is about to be increased, augmented, developed and multiplied in such fashion that where we now have doctors we will soon have theorists.

After a man is elected to office he does what he pleases. The time for a doctor to "do anything" about the government situation is to do it before even the candidate is nominated at the primaries! First plans must be laid long before the primaries and followed up or fought long before the general elections. The axiom, "Give us the child until he is seven years old" can be paraphrased aptly for contemporary needs into "Give us the candidate before he manages to be one." Nor is medical protective work ended even if the "doctor's candidate" is elected. Somebody must run along and hold the hand of the man after he is elected, during all the legislative sessions as well as before and after and between them. Candid discussion of medical and welfare questions should be made by medicos, by candidates and by the community.

Nor is this the end. A keen, virile attempt should be made by the medical profession to fill dignified public offices with medical men. Surely outside of the church, possibly, an able man of medicine knows more of humanity than does any other class or variety or specimen of citizenry. Why then should such a man be treated with less consideration in the task of governing the land in which he lives than is the illiterate and often vicious alien as so often is the case?

The answer is that the alien or the gangster is only too sharply aware of the possibilities of being "the boss-man." The physician on the other hand considers it beneath his dignity and his scientific prestige to "get into politics" though he does not consider it beaneath his dignity to fawn upon the illiterate in power, to secure pathetically small benefits for his profession and for the persons whom it serves.

American doctors are peculiarly class conscious in this regard. Among them this fixation is both widespread, pitiful, and seemingly incurable. They have come to consider themselves, as political prospects, far more "pygmy-fied" than was Alice in certain adventures through the looking glass. What medical men need is a little edema of the patriotic glands.

To the trite outcry, "But politics is dirty! Who wants to lie down with dogs and come up well flea-bitten?", the response is obvious. The same group of men who could clean up yellow-fever, rout typhus and typhoid, but a bridle on smallpox, and learn methods for erasing veneral disease should be able to meet filth in government, face to face, and then send it packing about its business. There is no job in the government of the United States that an educated, competent reputable physician can not fill as ably as any other educated, competent reputable citizen in any other profession. But did any one yet ever hear of a doctor running for president? And dropping down a bit in the scale of authority, how many have become governors, or even tried to? If a doctor can make the United States Senate, and some have done so, and have done their work well, why not give the doctor a chance in other governmental capacities? Why make of politics a fertile ground for lawyers alone among American professional men? These bulk now at Washington both in Senate and House.

PAPERS FOR THE 1936 ANNUAL MEETING

The officers of the five scientific sections of the Illinois State Medical Society are now working on their plans for a successful annual meeting in Springfield next May. According to the usual custom in this Society, speakers will be limited to members of the Society, with the exception of the annual Orations in Medicine and in Surgery.

The officers of the sections are anxious to hear from members desiring to present papers at the 1936 meeting, and any member who would like to present a paper before any of the sections should get in touch with the proper officers as early as possible. It is the desire of those responsible for arranging the programs for the annual meeting to have only subjects of general interest to the members of the respective sections presented, and any member who would like to present a paper before one of the sections should write either to the chairman or the secretary of the section and give not only the title of the paper, but short synopsis of same for the information of the proper officer.

The Scientific Committee, composed of the chairman and the secretary of each of the five scientific sections, recently held a meeting and made tentative arrangements for the 1936 annual meeting program. On account of the popularity of the usual Thursday Morning general general session, all sections will unite also on Wednesday Morning for another general meeting, the program to consist of papers presented by members of each of the sections and each paper to be of general interest to all physicians, reserving the more technical papers for individual section meetings.

The Pediatricians will hold their special meeting on Tuesday Morning, and the Obstetricians and Gynecologists will also have their special meeting at the same time.

For the information of any member desiring to present a paper before any of the sections, we are giving the list of section officers for their guidance.

SECTION ON MEDICINE

George Parker, Chairman.....Peoria
J. G. Carr, Secretary.....
.....30 N. Michigan Blvd., Chicago

SECTION ON SURGERY

John A. Wolfer, Chairman.....
.....8 S. Michigan Blvd., Chicago
C. Paul White, Secretary.....Kewanee

SECTION ON EYE, EAR, NOSE AND THROAT

W. W. Gailey, Chairman.... ...Bloomington
John A. Cavanaugh, Secretary.....
.....30 N. Michigan Blvd., Chicago

SECTION ON PUBLIC HEALTH AND HYGIENE

W. M. Talbert, Chairman.....Decatur
Archibald Hoyne, Secretary.....
.....25 E. Washington St., Chicago

SECTION ON RADIOLOGY

George M. Landau, Chairman.....
.....660 Groveland Park, Chicago
R. T. Pettit, Secretary.....Ottawa

According to the usual custom, Downstate members desiring to present papers should get in touch with the Downstate officer of the section, while those in Chicago should write the Chicago officer, as it is desirable that the speakers in each section should be truly representative of both groups.

In order that the section officers may be able to arrange a fine program for the 1936 annual programs arranged at an early date and with a relatively small number of speakers on each section program it is hoped that any member desiring to present a paper will act according to the above instruction at an early date.

RUSSIAN MEDICINE

Doctor Nolie Mumey of Denver, in Colorado Medicine, November, 1935, outlines medicine in Soviet Russia as it was found in two of Russia's largest cities. The Doctor's article is long and historically interesting. We publish a few of the highlights or excerpts as follows:

In Leningrad surgeons work under difficult conditions without overhead lighting. The operating theatres are arranged so that light comes in from the side. Catgut is seldom used; silk and linen seem to be the prevalent suture material. Most of the operating is done with heavy rubber gloves, and at times with only bare hands.

The nursing staff seems to be composed of middle-aged women who go about their duties with sad and hardened faces. They are unprofessional in their attitude and dress, strolling through the corridors without stockings, smoking cigarettes.

ABORTION CLINIC

In Russia a woman is entitled to six abortions a year and they are done on her request only. It is illegal to have it performed except

in the clinic maintained for that purpose. Russia has a lower death rate from abortions than any other country at the present time. In one afternoon there were thirty-five done in that particular hospital.

Medical supervisors in the various institutions receive salaries of from about $90 to $125 per month. Their salaries are determined on the value of their service to the Soviet Union.

The general type of surgery is of fair quality; medicine is fair; pediatrics are good; physiology and experimental medicine are on a fairly high plane, the latter perhaps being influenced largely by European methods and the access to their literature.

Women are on an equal basis in medicine with men and can attain a high place, according to their ability. On an average the best physicians in Russia receive the salary of an ordinary laborer. There is very little rivalry among the professional men. They seem to be interested and contented with their work. There is at the present time an abundance of clinical material that could be organized in such a way as to make Leningrad and Moscow two great medical centers for postgraduate study.

THE STOMACH IS THE PRINCIPAL SITE OF FATAL CANCER AMONG WHITE MALES AND ALSO VERY PROBABLY AMONG WHITE FEMALES AS WELL

Louis I. Dublin in an address on the "Incidence of Gastric Cancers" before the Symposium on Carcinoma of the Stomach, at the 50th anniversary of Memorial Hospital, May 25, 1934, presented statistics and facts pertaining to cancer of the stomach based upon the experience of his company's Industrial policyholders. He concluded that, in the United States, the stomach is the principal site of fatal cancer among white males and also very probably among white females as well; that the incidence of gastric cancer is approximately 50 per cent. greater among white males than among white females; and that among white females, the death rate from gastric cancer and, by inference, the incidence of gastric cancer, appears to be decreasing at a rate greater than can be attributed to chance alone. "Among males," Dr. Dublin said, "the death rate has shown a slight tendency to increase but this is statistically significant only at the older ages of life."

Dr. Dublin said that "possibly as many as one-third of the deaths actually due to cancer of the stomach are ascribed to other causes."

Pointing out that in 1932 a total of 27,000 deaths from gastric cancer were recorded for the population of the United States, Dr. Dublin declared that due to inaccuracies in diagnosis and failure to report cases, "it is my judgment that instead of 27,000 the annual number of deaths from cancer of the stomach and duodenum in the country at large is now more likly to be close to 40,000, or about as many as from bronchopneumonia, or coronary disease, including angina pectoris."

The statistical picture, however, Dr. Dublin declared, is improving.

Utilizing the extensive experience of the Industrial policyholders of his company, numbering many millions of individuals, Dr. Dublin said:

"I give you these figures for the insured with the very strong conviction that they show us essentially what has been happening in this disease in the general population of the country as well.

"There was a total of 40,573 deaths from gastric cancer among these insured lives in the years 1917 to 1933 inclusive. These occurred among an annual average of fifteen million policyholders over this period. The average annual crude death rate was, therefore, 15.5 per 100,000 exposed. The gastric cancers constituted 20.8 per cent. of all cancer deaths, the figures being much higher among the males than among the females."

Dr. Dublin explained that, as true for the disease in general, deaths from gastric cancer are largely concentrated in the later ages of life. "There are few deaths under 25," he said. "At ages 25 to 34, the rates are still low—averaging less than two per 100,000 per annum. It is only after age 35 that the death rate from this disease has any real meaning. At 45 to 54, the rates are already fairly high.

"Among white males, the average death rate in this age group over this entire period of seventeen years was 46.7 per 100,000, as contrasted with 30.6 per hundred thousand among white fe-

males. The death rate almost trebles in the next age period. Among white males, it is 132.7 per 100,000; among white females, 85.2 per 100,000. In the next age period, that is, 65 to 74, the rate doubles among white males and more than doubles among white females. The interesting points in figures are first, that the rates rise with advancing age and, second, that they are much higher among the males than among the females, being in fact, from a third to a half higher in the white race."

AN EMERGENCY CONFRONTS THE FUTURE OF PRIVATE HOSPITALS IN THIS COUNTRY

Dr. Bert W. Caldwell, executive secretary of the American Hospital Association, in the *Saturday Evening Post* of August 10 states that a serious situation, in fact an emergency, confronts the future of the voluntary or private hospitals of this country. He points out that in New York City there is approximately a $20,000,000 deficit confronting these institutions, and issues a further warning that this financial situation is as bad or even worse in many other communities. As a result 388 have closed in the last five years, 103 alone during 1934.

Dr. Caldwell points out further significant facts during the period 1931-4.

Free service increased from 15% to 60%, while income from pay patients decreased 30%.

Gifts and contributions were less by 78%.

Endowments and contributions met only 10% of the overhead. Consequently most of these hospitals were operating at a loss.

The solution for the future of these institutions is of course more *pay patients*. However, in the meantime perhaps they should apply to the PWA for a loan.

The PWA in August set aside $48,407,157 for units classified as "hospitals and other institutions," both federal and non-federal. Providing ample securities are pledged the loan to be made at 4%. Certain other provisions are included with the loan, for instance a certain percentage of free beds and free medical care.

As if there were not enough free beds and free medical treatment, the powers demand more and more. "Something for nothing and then charge you for doing it."

FACTS FOR HONEST-TO-GOODNESS AMERICANS TO PONDER OVER

The following nine indictments are contributed by John E. Waters, author of Red Justice. Mr. Waters was an instructor in the department of agriculture for the Soviet Government for a period of two years. Mr. Waters is now a resident of Madison, Wisconsin, P. O. Box 219.

DEMOCRACY VERSUS COMMUNISM

There are today in the United States over 600 Communist organizations.

The Communists maintain over 400 newspapers, magazines, and news bulletins.

There are more than 300 schools in the United States maintained by Communists teaching revolutionary strike tactics and hatred of our government and institutions.

The official organ of the Communist Party states that the Party has enrolled over 5,400,000 high school students and approximately 1,000,000 students in colleges and universities in the United States.

Earl Browder, Secretary of the American Communist Party, while attending the Seventh Congress of the Third Internationale at Moscow made the statement that most of the strikes and labor troubles in this country were caused by the Communists.

Sam Darcy of San Francisco, American delegate, before the Communist Internationale said, that a strike of "unprecedented scope" by seamen and dock workers on the Pacific Coast of America would be called in September.

William Z. Foster, one time Communist candidate for president of the United States told the Congress of the Internationale that more than 1,000,000 young American workers have rallied to the standard of the Communist "United Front" movement.

Without counting the murders of thousands of the old nobility, more than twenty million Russians have died from execution and starvation since Russia has been under Communist rule.

Do you want the same Communist form of government in this country? Unless American citizens unite to fight subversive propaganda in schools, churches, labor unions and elsewhere, we will have the same form of government that has brought disaster in Russia.

NEW YORK STATE JOURNAL SHOWS UP MEDICAL BOONDOGGLING

The *New York State Journal of Medicine,* November 15, 1935, issue has the following to say on Boondoggling. We quote:

"Remarkably quick action followed the editorial in the November 1 issue of the State Journal on the proposed "survey" of deaf pre-school children in Monroe County. The project was to spend $10,440 of public funds by the W. P. A. on this survey, when there were only 14 such children in the county. The State and County Medical Societies, the County Health Officer and the other groups raised objections, and finally the State Journal criticism appeared on October 31. The order was cancelled the next day."

HERNIA REDUCED EN MASSE

Louis H. Nason and Charles G. Mixter, Boston (*Journal A. M. A.,* Nov. 23, 1935), observed five cases of hernia reduced *en masse.* Although they consider this a rare accident, three of the five cases occurred in a group of seventy-three incarcerated or strangulated hernias. It is shown to occur in the well established hernia with the sack lying loosely in the hernial canal. The hernial sac and its contents can be displaced properitoneally, retroperitoneally, or directly into the abdominal cavity. Forceful attempts at reduction may or may not be a factor in its production. Patients are seen because of intestinal obstruction, and examination reveals a definite defect at the usual site of the hernia, with no apparent hernial sac. In the properitoneal false reduction a tumor mass may be felt in the abdominal wall above and medial to the site of the internal inguinal ring. The abdominal approach to the hernia is recommended as the most expedient.

USE OF UNSATURATED FATTY ACIDS IN TREATMENT OF ECZEMA (ATOPIC DERMATITIS, NEURODERMATITIS)

In their clinical experience with linseed oil, covering a period of eight months, Samuel J. Taub and Samuel J. Zakon, Chicago (*Journal A. M. A.,* Nov. 23, 1935), have used a purified linseed oil as advised by Hansen, in doses of from one-half to 1 ounce (15 to 30 cc.) three times a day. Their series comprises only eight patients with eczema (atopic dermatitis, neurodermatitis). The results were universally poor. Two of the patients, while taking the linseed oil, developed crops of oily cysts and furunculosis. Another patient had a severe asthmatic attack after taking the linseed oil. The asthma developed the first day the oil was taken and skin tests with powdered linseed and cottonseed were strongly positive. One of the distributors of a linseed oil specifically states in its advertisement to doctors that asthma is benefited while under this treatment. In none of these patients could the authors see any improvement in the clinical appearance of the eczema. In view of these results they have discontinued the use of the unsaturated fatty acids in the treatment of atopic eczema and conclude that the promiscuous use of linseed oil as advocated by the distributors of this product is entirely unjustified and not without danger if used for a patient who may be cottonseed or linseed sensitive.

FACTORS CAUSING BRONCHIECTASIS: THEIR CLINICAL APPLICATION TO DIAGNOSIS AND TREATMENT

In a recent survey of 110 cases of bronciectasis, which have been thoroughly studied and followed for varying periods of time up to eight years, W. P. Warner, Toronto, Ont. (*Journal A. M. A.,* Nov. 23, 1935), found that the bronciectasis began with a known illness in 59 per cent (pneumonia, lung abscess, influenza, whooping cough, "acute bronchitis," measles, bronchogenic carcinoma and foreign body) and in 41 per cent of the cases the onset was insidious, there being no history of any acute respiratory infection immediately preceding the onset of bronchiectasis. However, the frequency of an acute respiratory disease preceding the bronchiectasis and the character of the general and local symptoms during the course of the disease strongly suggest infection as the important etiologic factor. A discussion of the forces causing physiologic bronchial dilatation, added factors occurring in bronchiectasis that help to cause pathologic bronchial dilatation and congenital bronchiectasis reveals that the primary fault in bronchiectasis is a non-specific infection of the bronchial wall causing destruction, particularly of the muscle and elastic tissues present. The weakened bronchus then becomes permanently dilated, owing to the forces causing physiologic bronchial dilatation. There are certain added factors: atelectasis of the parenchyma, fibrosis of the parenchyma, and central bronchial obstruction, which increase this physiologic dilating force and tend to produce permanent or pathologic dilatation. The conception of bronchiectasis as a primary disease of the bronchus secondarily affecting the parenchyma alters the interpretation of signs and symptoms and the application of therapy.

ANESTHESIA FOR THYROCARDIAC PATIENTS

L. F. Sise, Boston (*Journal A. M. A.,* Nov. 23, 1935), enlarges the ordinary definition of a thyrocardiac condition to include coronary disease, angina mitral stenosis and aortic regurgitation. Local anesthesia is inferior to the gases because these patients are unusually nervous, anesthesia is inadequate (unless block is used) and the surgeon is restricted. Of the gases, nitrous oxide is dangerous on account of anoxemia, unless much premedication or an adjuvant is used. The best anesthetics are ethylene, cyclopropane, ethylene-cyclopropane or ethylene-ether. A nice choice between these is less important than the proper conduct of anesthesia. This should include the avoidance of anoxemia and obstruction, liberal premedication, minimal rebreathing and a nicely adjusted depth of anesthesia. In the author's last 100 cases there were five complications and three deaths.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
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MEDICAL ECONOMICS COLUMN FOR DECEMBER

Evidences of the increased interest in the subject of Medical Economics comes to the attention of your Committee almost daily. At the recent meeting of the Secretaries of the State Medical Societies of the United States held at Chicago, the Chairman was particularly impressed by the number of subjects discussed which come under the heading of this department. Apparently the time has passed when it is unethical to discuss the business side of the practice of medicine. Many men both on the program and privately expressed the sentiments so often given in this column, namely, that the important subject now before the medical profession has to do with the business side of the practice of medicine and that the time has arrived for organized medicine to assume a more militant attitude and endeavor to have plans and procedures to meet the changed economic conditions of this country. They feel that failure to so do, leaves but one alternative and that is some non-medical agency will present the plans, and of course such plans will give the medical profession little consideration either in the planning or the carrying out of the plans when and if they become part of the general plan of the reformers.

Many plans are now being tried in different parts of the country to care for the indigent. The so-called Washington Plan appears to be one of the most successful and is being accepted in other parts of the country. It is quite intricate and takes considerable money for the overhead, but is practical in Washington and should be in other cities of like size. How it would work in small communities is questioned by some. In Kansas the Medical Economics Committee has worked out a plan whereby all of the charity work is handled through the County Medical Society on a schedule of $1.00 per month for each individual on relief roles. This amount is paid by the Board of Supervisors or Relief Officials directly into the treasury of the local County Medical Society. The patients call the doctor of their choice and when he has completed the care of the case he sends his bill directly to the executive secretary of the County Medical Society and he pays the bill out of the funds received from either the Board of Supervisors or relief agencies. At once many objections and questions as to how this plan will work comes to mind. However, the officers of the Kansas State Medical Society inform us that the results have been most satisfactory in the counties that have used the plan the longest and that new counties are adopting the plan every week. They stress the importance of cooperation of the medical profession, insisting that every one must keep in mind the Golden Rule and not allow either personal cupidity or unreasonable demand on the part of the indigents to result in abuse of the demands on the treasury. They claim that the amount of overhead is surprisingly low and that in all instances the income from relief agencies exceeds the expenditures to the medical profession and for executive workers. Surely, Kansas is to be commended for working out such a simple and yet workable plan and the rest of the states are giving this plan great consideration. It is possible that such a plan will help the physicians of Illinois to meet the present problem, resulting from the transfer of the care of the indigent from a township to a county responsibility.

This month we have two contributors to our column. The first article is from the pen of Dr. C. S. Skaggs, immediate Past President of the Illinois State Medical Society, who writes on the origin of present plan of medical control. The second is also from a former President, Dr. J. R. Neal, writing on "The Doctor's Problems." Both articles are well worth your time and attention and we recommend that you read them at this time.

E. S. Hamilton, M. D.,
Chairman of Committee on Medical Economics.

FROM WHERE ORIGINATED THE IDEA THAT ONE GROUP MUST CONTROL ALL OTHER GROUPS

This idea seems prevalent all over the world today, our own country included, hence the question arises. Our dear land of the free and the home of the brave was the last to become infected with this malignant idea. The infection must have been brought from across the seas, for it did not manifest itself until our people began to cross over in large numbers and to return with detailed descriptions of the social mistakes of other nations.

Or is it due to education? Some years back, our people caught the spirit of higher education for all our people. Such a privilege has been offered to all. Then we began to notice that a certain group began having a passion to fit all individuals into certain forms and to regimentate all business and professions, declaring that all belonged to society and that society belonged to them as a reward for their superior intelligence.

To one who uses just ordinary reasoning based upon final results, it is hard to justify the reason to copy after the mistakes of others. So it surely does require some form of superior knowledge to give a logical reason why American Medicine should be socialized and controlled by non-medical minds and be forced into demoralization and decay.

As one looks out over the mass of highly educated minds that now idly parade our avenue of traffic, and then turn and view our economic situation, our disregard for law and order, our business failures, our industrial breakdown, our helplessness to help and our urge to destroy all that is good and wholesome, one almost finds himself tempted to ask someone the question "What has education taught us?"

Education is the basic fundamental principle of human progress, but is what we have education or is it that we have education but lack the knowledge of how to use it? Any way you take it or answer this question, the fact remains that there is something wrong and until that something is found, the individual had best be left alone to pursue his own good sense as long as he commits no crime.

We said that education was the one sure cure for crime. I ask no questions here, I only wonder if it was best to cure crime. We said that education would reduce poverty and banish all needs. I ask no questions, I still am wondering. We said education would banish corrupt politics and establish a wasteless government and apply a rule of justice and fairness to all citizens alike under all circumstances and guarantee freedom and pursuit of happiness to its people. Again I ask no questions, I only want more time to think and wonder, for it just seems to me that the whole thing doesn't add up just right.

I have sometimes wondered just what or how much education certain minds will tolerate without reverting to a state of radicalism. This wonderment has been caused by certain reactions that I have observed from certain sources. These minds send out the cry for centralization of power and tell us that the cure for all our modern ills lies in collectivism and the regimentation of business, industry and all professions.

What makes society? What is collectivism? The unit in each is the individual and the power in each is the individual. A strong individual cannot pass his strength to the weak individual, he can only help him to live. Human minds cannot be blueprinted.

The practice of medicine is an individual science and art and without art, the science of medicine has little value. Art is invested in the individual physician. The scientific physician can cure malaria but he can't correct the maladjusted personality.

The regimentation of the medical profession can accomplish only one thing in America and that thing is deterioration of medical science and service to the American People. This is fundamental and experience has demonstrated it over and over again.

There are many faults in medicine, but these faults will never be corrected by social dictatorship nor the ills be cured by the doctors of philosophy. These things must and will be taken care of by the physician himself as he makes progress toward a better medical service and a more accurate science. We are not blind to our faults or unresponsive to the call for a better medical service; but we do resent the offer of those who have failed in their own special field to come over and show us how to practice the art in which we are trained.

I see nothing wrong and unfair to the unsuspecting public that these self styled directors of human destiny produce some evidence that they are qualified to direct the going and coming of

the medical profession. Is there any reason for me to believe that if I was under the direction of some political appointee in social work, or a political hireling that I would be a more efficient physician and deliver a better medical service to my patient at a time when needed most at a cost which would be less than that at which he now receives services. It is not the cost that these people are worried about. They are worried mostly because the man who can't afford to pay for his medical service gets it for nothing and they are denied a salaried job that permits him to charge this free service to the tax payer.

The politician has manifested only one abiding interest in the people and that is more and better ways to levy taxes upon them. It is not a question of developing a great people and a just government. The question is more political jobs and a more expensive government.

I do not doubt but that most of our Doctors of Philosophy have high and lofty thoughts and I grant this to most of our trained and untrained social workers, but these thoughts have not been put forward in the social program proposed.

Influence and money will cause us often to think to suit the other fellows' program.

There are some people who don't believe in Hell who are afraid that they are going there. Some of these people have more money than thoughts. They are accustomed to using the power of money so they pay someone to think for them. Someone has told them that the great Friend of Man said that if ye minister unto the needy you may have a chance. So the sick man who can't afford to have a doctor when he is sick because he doesn't care enough comes to his mind and the Ph. D. is called in to do some thinking. Some people can think the wishes of anyone if the salary is sufficient to stimulate their brain cells.

Thinking that the medical profession should be socialized and controlled by some group foreign to medicine brings a fair financial reward and at the same time pleases the politician. This places the thinker in a good position two ways. It is strange that some of these benevolent thinkers have not evolved a plan that would cause politicians to act in a manner which would create a better condition of all, reduce crime and governmental waste.

The medical profession has no objection to being under the control of any one or any group that can show fair evidence that they can raise the standards of medical science and bring into being a better service; but in the light of the demoralizing effects that all such attempts have had upon the profession and those it serves, it is the duty of every self respecting physician and citizen to oppose every semblance of political control of the practice of medicine.

State Medicine is in effect like alcohol upon the individual in that the lower instincts are elevated and the higher instincts lowered in the physician. Medical science has too much to offer the American people for them to be denied the right to receive it to satisfy selfish interest. Never in the history of mankind has medical science had so much to give unto man as it has in America today. This is due to the fact that Medical Science has been unhampered in its progress. The American people cannot afford to lose these benefits and no group has either the moral or legal rights to take it from them.

For hundreds of years the physicians have labored to bring this day to the people. Will we be denied the glory of our achievements or will we stand as one and repel all who attempt to stop our progress? I believe we will stand united as a State Organization and as a National Organization.

CHARLES S. SKAGGS, M. D.,

THE DOCTOR'S PROBLEMS

Changes of profound interest to the medical profession appear to be impending. Faced with this situation the casual observer believes that doctors have never before had thrust upon them for solution so many problems of such a complex and far-reaching character. Everywhere the storm clouds of debate darken the medical firmament. To the individual who has forgotten that sunshine has always alternated with rain the future seems dreary and dark. To him who forgets that a house built upon a rock withstands the storm, that conception of the future may be entirely correct. All problems of human affairs move inevitably toward a solution of some kind. What the outcome is depends in no small measure upon the attitude of those most deeply concerned and upon the vigor and intelligence with which the situation is met.

Present day medical problems are of two general classes, personal and public. This has always

Address to Woman's Auxiliary, Chicago, November 6, 1935

been true. Personal problems, from a professional viewpoint, are concerned with training, talent, skill and the relation of doctor to his patient. Public problems are concerned with the relation of physicians to the community, the state and the nation.

Neither class of these problems is new. Doctors, like people in every other walk of life, have always been faced with personal problems and now, as always, their solution depends upon the human qualities and upon the training of the individual doctor. Likewise the medical profession no less than others by special training and talent have always been confronted with problems of human relations. From neither is there any escape. The challenge is to meet whatever problem may arise with confidence built upon an intelligent appraisal of the situation with the ultimate good of society and of the profession in view.

With personal problems organized medicine has little to do. These are matters that the individual doctor must appraise and solve to the best of his ability. Native talent and studious habits are the foundations of success in solving personal problems.

Among the public medical problems of immediate interest which press for solution are those embraced in the so-called Social Security Act and in the threat of a new law concerned with compulsory health insurance. These are matters that can be handled satisfactorily only through organized effort. The situation must be appraised and policies determined by medical societies and associations if the results of legislation bring improvement instead of confusion and deterioration.

Since public medical problems are not new an examination of what has transpired in the past may be helpful in approaching a satisfactory solution of those now at hand. The history of medical legislation in Illinois dates back to territorial days. From 1817, the year before Illinois was admitted to the Union, until 1877, there were threats and counter-threats at the legal regulation of medical practice without permanent legislative success.

Throughout that half century during which the state emerged from an open prairie to one of the foremost commonwealths of the nation, eight bills seeking to regulate the practice of medicine were introduced into the General Assembly. Four of the bills were enacted into law and four failed. Success in each instance was measured by the interest and vigor of action of physicians who represented the highest level of medical practice. Failure in each case was marked by the absence of leadership and united effort.

The first medical practice law was enacted in 1817. Fathered by a physician in the General Assembly this law provided for the organization of official medical societies. They had power as extensive and rigid as any that now reposes in the departments of state government to grant or withhold licenses on the basis of professional fitness. Medical matters were legally reposed in the lap of the medical profession. They could determine their own standards and prohibit the privilege of practice to any who failed to meet the requirements which they set up.

That law was automatically terminated when the territory became a state.

A similar law was enacted by the first state legislature in 1819 but was promptly repealed the following year. Again in 1825 another law regulating the licensure of medical practitioners was enacted only to be repealed at the next session.

In this alternate success and defeat of the early attempts at regulating the practice of medicine are seen the clashing of interests that contend now no less bitterly than then for legislative supremacy—those of the ethical medical profession and of the quacks. The physicians lost the field because they were overwhelmed by numbers on the one hand and by popular indifference on the other.

Then as now the ethical doctor wanted for the public the best that knowledge and skill could provide. He was interested primarily in the welfare of his people. Then as now the quack was looking for cash. The doctor favored the highest standards consistent with the educational facilities and the status of medical knowledge of that day. The quack wanted no standards at all and no legal incumbrances to his purpose.

That the physicians who interested themselves in legislative matters were prompted by the highest professional motives is shown by the text of the laws enacted. Section 10 of the territorial law, for example, reads as follows:

"That it shall be lawful for each of the medical so-

cieties to establish by virtue of this act, to cause to be raised and collected from each member of such society, a sum not exceeding ten dollars in any one year, for the purpose of procuring a medical library and apparatus, and for the encouragement of useful discoveries in chemistry, botany and such other improvements as the majority of the society shall think proper."

The prevalence of quacks, who undoubtedly were responsible for the defeat of medical legislation, and the low estate of their alleged art, are indicated by the descriptive literature of the day. Thus from a report by William Blane, who visited Illinois about 1827, we read:

"Persons who have not visited the western states cannot have any idea of the general ignorance of the practitioners of medicine. A young man, after an apprenticeship of a year or two in the shop of some ignorant apothecary, or after a very superficial course of study at some school or college is entitled to cure (or kill) all the unhappy backwoodsmen who may apply to him for advice. To become a doctor it is only necessary to have a cabinet containing 50 to 100 dollars worth of drugs."

This was the sort of public problem which confronted the ethical physician in Illinois one hundred years ago. This was the sort of condition which he deplored and fought then as now. His temporary successes with legislation resulted from the fact that medical members of the legislature maneuvered bills to passage before the quacks were able to organize opposition. Repeal of these laws took place when the lay members of the General Assembly heard from their quack constituency back home.

By 1827 the quacks had learned that politics played bedfellow with the group that organized and watched its interests in season and out. From that date until 1877 no medical regulatory measure succeeded in passing the legislature. Sour bills were offered and each in turn was defeated. Illinois remained the happy hunting grounds for quacks and charlatans.

Of particular interest in respect to current medical problems is the fact that during that span of nearly half a century there was no closely knit organization of the ethical medical practitioners. The Illinois State Medical Society was organized in 1850. The Chicago Medical Society was organized the same year. Lacking the support of a strong union the profession found itself at a distinct disadvantage in legislative matters. There was no unity of purpose, no unity of strength and no unity of leadership. Every doctor recognized the existence of a pressing public medical problem. Every doctor believed that something ought to be done about it. Every doctor had a vague idea about what should be done and how to do it. None could act independently, however, and nothing was accomplished.

In 1877 the first permanent medical practice act was spread upon the statute books of Illinois. The new law was the child of the State Medical Society born of united effort after a gestation period of twenty-five years. The leaders of organized medicine knew what they wanted. One committee after another was appointed to bring about the desired results. Failure at first only spurned the leaders on to renewed efforts. On the third attempt after the profession organized itself into a permanent society representing the full strength of ethical practitioners the General Assembly dared not longer postpone their demands. What they wanted was manifestly in the interests of the public good. They asked that standards of qualification be set up for medical practitioners. They asked that the public be protected against the quack and the incompetent. They demanded a license of all medical practitioners. If these measures favored the qualified physicians, that fact was incidental to the main purpose in view. No practitioner who had followed his art in the state for ten years was denied a license. The law was eminently fair in this respect.

Developments with respect to medical practice during the fifty-odd years since the enactment of that first permanent law in 1877, have been along two distinct lines—raising the standards of medical practice on the one hand and extending preventive medicine in the form of public health service on the other. This has led to a division of interests in organized medicine.

Those leaders who aim at maintaining and improving the standards of practice have stuck close to organized medicine. Those whose interests are primarily in sanitation and hygiene have drifted into public health service. While the ultimate purposes of both are the same, organized medicine has spent its unified, unbending efforts upon standardizing medical colleges, hospitals and licensure while it has left the public health departments to their own devices.

The inevitable has happened. Lack of organized medical leadership in public health has permitted the politician to invade this field.

Fanciful schemes for saving the people are being proposed. Not content with sanitation and the application of general measures for the control of communicable diseases the politicians would hand over to federal bureaus a large scale management of the practice of medicine. Instead of catering to the quacks as they did a century ago the politicians now would take over bodily the management of medical affairs which formerly they spurned.

The Social Security Act, passed by the last Congress, provides in one title for an expansion of legitimate public health service; in another it provides for the expansion of maternity and infant hygiene; in still another title appear provisions for the medical treatment and hospital care for physically handicapped children. The Social Security Board, set up by the law, is authorized to explore the possibilities of compulsory health insurance. The whole picture discloses a trend of politician and laymen to invade the medical field. Where a century ago the politician listened to the quack he now lends his ear to the uplifter. At that time the danger to the public was too little legislation because the doctor's voice was individual without the benefit of organized leadership and effort. Now the danger to the public as well as to the profession is too many laws, because organized medicine has failed to retain the advantage of leadership which it once had in public health legislation.

The trend toward governmental expansion in the medical field has been clearly in progress for twenty-five years. Each new step taken over by the government has been a warning to the medical profession that new procedures and new programs to meet the changing requirements of modern society were in demand. No plans have been offered by organized medicine. On the contrary the medical association have all too often been maneuvered into an opposition camp. While their grounds for objecting to proposed legislation have always been sound, perpetual opposition with never a constructive proposal puts organized medicine in an unfavorable light with the public.

Legislation concerning medical matters will never cease. These problems will beset the doctor in the future as they have aways done in the past. Satisfactory solution in the future will depend upon the initiative and aggressiveness with which the organized profession recognizes the requirements and demands of society and submits practicable plans for their fulfillment.

To meet the national situation the American Medical Association ought to assume leadership. Instead of being satisfied with a study of what others have done, are doing or are about to do, the American Medical Association ought to develop legislative programs which will offer the most promise of meeting the public health and medical requirements of the population. A committee made up of all past presidents of the Association might be commissioned to accomplish this task.

In like manner the Illinois State Medical Society ought to utilize its strenth and talent to direct public health legislation along channels which will provide the best and most extensive preventive medicine possible but which at the same time will leave the doctor a free man. So long as organized medicine merely opposes what others propose, so long as they occupy an opposition, defensive camp, the problems of legislation will harass the practitioner with little promise of solution.

J. R. Neal, M. D.,
Chairman Legislative Committee.

ACTIVITIES OF THE WOMAN'S AUXILIARY

Believing that it is vitally necessary that the public be given correct information on provisions and mandates of the "Social Security Act," especially in its relation to Medical Practice, we have asked each county Auxiliary to plan a "Laity Day" program to which should be invited members of the different civic organizations of the community.

The main portion of the program should be given over to a speaker who has made a study of this so-called "Social Security Act," and is able to present a clear picture of just what would happen should an enabling act passed by the Legislature of Illinois, putting into effect the mandates of this act. Such a speaker may be secured from the Speakers Bureau, Illinois State Medical Society, by writing to Miss Jean McArthur, Secretary, 185 N. Wabash Avenue, Chicago.

These programs are already under way. The Woman's Auxiliary to the Rock Island County Medical Society entertained more than one hundred fifty women, who had the privilege of hearing Dr. Harold Camp speak on "The Dangers of Social Security Legislation and its Relationship to the Medical Profession."

The Woman's Auxiliary to Chicago Medical Society entertained more than one hundred guests at luncheon November 6, when Dr. John R. Neal gave a most informative talk on the "Social Security Act."

The Woman's Auxiliary to the Sangamon County Medical Society entertained about one hundred repre-

sentatives of civic organizations at a Thanksgiving Tea, November 18, and heard Dr. Charles S. Skaggs give a most able presentation of reasons why this "Social Security Act" would not and could not work to the real advantage of any one save those hired to administer the act. *Hygeia* and Public Health exhibits, with short explanatory talks, were also featured on the program.

It is very encouraging to note that these talks have been well received, many of the listeners voicing their appreciation for this type of informative program.

Mrs. W. D. Chapman,
President.

CASTOR OIL AND QUININE FOR INDUCTION OF LABOR

Castor oil and quinine are still used almost universally as medicinal means of inducing labor, but the results are not uniform. At or beyond term, these drugs are successful in perhaps 25 per cent. of the cases. Because of the uncertainty involved, Watson suggested the use of solution of pituitary as a supplementary method. His technic is as follows:

At 6 p. m., castor oil, 30 cc.
At 7 p. m., quinine, 0.65 Gm.
At 8 p. m., large soap suds enema.
At 9 p. m., quinine, 0.65 Gm.
At midnight, quinine, 0.65 Gm.

If vains have not occurred by 9 o'clock of the following morning, 0.5 cc. of solution of pituitary is given hypodermically and repeated every half hour until labor sets in or until six doses have been administered. This method is effective in most cases, but the large doses of solution of pituitary and the large amount of quinine used are dangerous. Solution of pituitary in the doses given often results in tetanic contractions of the uterus and may possibly lead to rupture of the uterus. Quinine has occasionally caused the death of babies in utero; hence most physicians who give quinine prescribe only from 0.65 to 1 Gm. altogether. However, even this dose is too high to obtain the best results, because it has been shown recently that small doses are much more effective for stimulating uterine contractions than are large doses. Likewise at present small amounts of solution of pituitary are administered, usually 0.1 or 0.2 cc. at a time. Because it is difficult to inject exactly 0.1 or 0.2 cc. with the ordinary hypodermic syringe, it is best to use a specially marked one like a tuberculin syringe. Even with such small doses, tetanic contraction of the uterus may result; hence care must be exercised regardless of how small the dose is.

A number of years ago, Hofbauer demonstrated that solution of pituitary may be applied to the nasal mucous membrane and produce an oxytocic effect on the uterus. His method consists of soaking a pledget of gauze with 1 cc. of solution of pituitary and inserting the pledget beneath the inferior turbinated bone. After a few minutes, uterine contractions are usually observed. This method is safer than the hypodermic administration, because the rate of absorption of the solution of pituitary is slow and because the solution of pituitary may be removed as soon as unusually violent contractions of the uterus are noted. When this method is used, castor oil and quinine should be administered first and the pledget should be inserted into the nose about three hours after the last dose of quinine is given. If labor pains do not set in after thirty minutes, the pledget should be removed and another one inserted on the opposite side of the nose. A third and a fourth pledget may have to be used before desired results are obtained. The intranasal application with castor oil and quinine is successful in about 75 per cent of the cases at term. However, even the intranasal use of solution of pituitary may result in undesirable contractions; hence here again the cases must be properly selected and carefully watched.—J. A. M. A.

AMERICAN LEGION CALLS FOR FINISH FIGHT AGAINST COMMUNISM

The Legion urges:

Immediate, unequivocal serverance of all diplomatic relations with Soviet Russia.

Deportation of all destitute or troublesome aliens.

An uncompromising ban on all radical or subversive propaganda in schools.

Vigorous steps by the federal government to bolster the army, navy and marine corps, and to maintain them in future at the highest possible level of efficiency.

Unstinted activity by the Legion itself, and complete co-operation with any other organization that desires, it in the effort to stamp out un-American teachings, and to protect the youth of America from the traducing intentions of Communist and other radical agents.

There can be no compromise between Americanism and communism or any other "ism."

So says the Legion, and THE AMERICAN PEOPLE AGREE.

INHERITED TRAITS

Blood will tell, whether it be Scotch or of any other nationality.

A Scotsman went to a hospital for the purpose of giving blood to an ailing woman. The transfusion was successfully accomplished and the grateful woman sent the worthy Scot the sum of $50.

Some time later the woman's physician found a second transfusion necessary and again the son of Scotia was called upon. Again he gave his good blood, and again he was rewarded, but this time with $25.

The third transfusion became necessary. Again the Scot responded. The transfusion was successfully accomplished.

But by that time the woman had so much Scotch blood in her veins that she wouldn't give him anything but a thank-you.

DISGUISE

Voice on Phone: "John Smith is sick and can' attend class today. He requested me to notify you."

Professor: "All right. Who is this speaking?"

Voice: "This is my roommate."—*M. I. T. Voo Doo.*

Original Articles

INFLUENCE OF IONIZATION ON VASOMOTOR RHINITIS

Clinical and Experimental Studies

A. R. Hollender, M. D.
AND
Meyer Gorin, M.D.
CHICAGO

From a purely therapeutic point of view ionization may be defined as the transfer or introduction of certain drugs or chemicals from a state of solution into the tissues by an electric (galvanic) current. To appreciate the value of what may also be called an electrolytic method of medication as compared with topical applications of the same drug, or chemical, it will suffice to recall two typical experiments. Leduc[1], doubtless one of the greatest pioneers in the study of electric ions and their use in medicine, has shown that an adequate galvanic current can carry electrolytic substances through the skin. He placed cotton soaked with a solution of strychnine against the inner surface of an ear of a rabbit and held it there for a long period without observing any effects. When the experiment was repeated in a manner that the drug soaked cotton (electrode) was connected with the positive pole of an electric current, and the negative electrode (another pad moistened with salt solution) placed on some body surface distant from the ear, so as to place the animal within the electric circuit, it almost at once developed tetanic convulsions which increased in intensity until the animal died.

Leduc also found that when cocain solution is ionized by a similar procedure, it produces analgesia the same as by a hypodermic injection, but by ionization the drug enters only the plasma of the cells, does not diffuse, and therefore, does not reach the circulation.

These two experiments convey a clear idea of the manner of medication by ionization. While it is true that when this procedure is applied to mucous membranes there is a certain amount of absorption, this phase is of no importance for the treatment of the nasal mucous membrane for vasomotor rhinitis or similar conditions.

Development of Intranasal Ionization. One of us (H)[2] has utilized a zinc solution for ionization of the nasal mucous membranes for the past twelve years and has administered over a thousand treatments. At first applied for simple chronic rhinitis[3] with gratifying results, the field was extended to include certain types of ethmoid[4] and maxillary sinus involvement[5]. It was utilized also for vasomotor rhinitis and seasonal hay fever, but as the results obtained had not been uniform throughout, wider extension of the procedure was not favored. Both the apparatus and the technic, however, have been improved and extensive application of the method has been made in a number of cases of nasal allergy of the seasonal and perennial types.

One of us (H)[6] recently introduced a new electrode appliance (Fig. 1) which has improved and simplified the technic of intranasal ionization. Thus one is enabled to apply the procedure easily and safely. This addition to therapy has made possible certain investigations on a large scale for the purpose of determining its usefulness, if any, in all types of nasal allergy.

From the Department of Laryngology, Rhinology and Otology, University of Illinois College of Medicine.

Read before the Section on Eye, Ear, Nose and Throat, 85th Annual Meeting, Illinois State Medical Society, at Rockford, May 22, 1935.

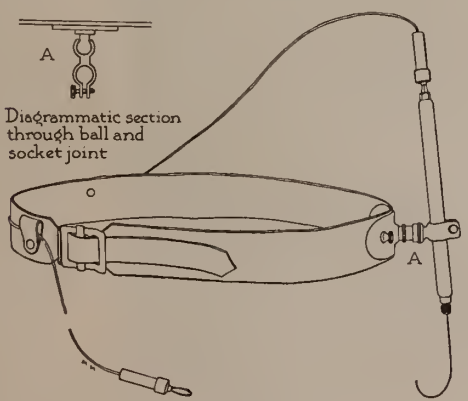


Fig. 1. Self retaining headband electrode for intranasal zinc ionization.



Fig. 2. Arrangement of apparatus for treatment (ionization) of right nasal chamber.

Apparatus and Technic. Our technic of intranasal ionization has been described in some detail in previous publications [7] [8]. It must suffice here to point out the following requisites:

1. A galvanic current applicable for therapeutic purposes,

2. An electrolyte—a solution of zinc sulphate up to two per cent. in strength,

3. Ribbon gauze,

4. A zinc electrode (such as illustrated in Fig. 1) which is to be connected with the positive pole of a galvanic apparatus, and

5. An electrode terminating in a felt-covered metal plate (about 5x7 inches) to be connected with the negative pole of a galvanic apparatus, as the indifferent electrode to close the circuit.

The accompanying diagram (Fig. 2) shows the arrangement of the complete appliance for treatment. It is seen that the headband is in the usual place around the head in order to hold the positive zinc electrode in contact with the wet ribbon gauze packing in the nose, while the indifferent electrode is attached to the forearm of the patient.

The electrolyte we have used is a solution of zinc sulphate about 2% in strength. Recently Warwick[9] [10] has suggested an electrolyte composed of the sulphates of zinc, cadmium and tin and an electrode of an alloy of these metallic chemicals. While good results with such solution and electrode can no doubt be obtained, the question has properly been raised whether an electrolyte composed of several similar drugs offers any advantages over one containing a single drug in solution.

Bernard Fantus[11], Professor of Therapeutics at the University of Illinois College of Medicine, has properly asked: What proof is there that tin or cadmium, or both, improve the potency of zinc? Has it been shown that each ingredient possesses a unique property and enhances the value of the principal agent? Has the optimum relative proportion of each ingredient been demonstrated by actual biologic tests? Is there proof that the three ingredients, zinc, cadmium and tin act synergistically and not merely in an additive manner? Until these questions have been answered, we, too, see no reason for substituting an electrolyte of several similar drugs for one of a single drug. In this respect one must recall Bürgi's postulate, that agents acting in one and the same way when combined can act only in an additive manner. In other words synergistic action of several drugs is obtainable only when they augment each other therapeutically.

Action of Ionization on Nasal Musoca. Leduc[1] pointed out that the ions of the so-called heavy metals are all more or less caustic, probably because of their coagulating action on albumen. "One of the most interesting for the physician is the zinc ion. . . Even in the case of

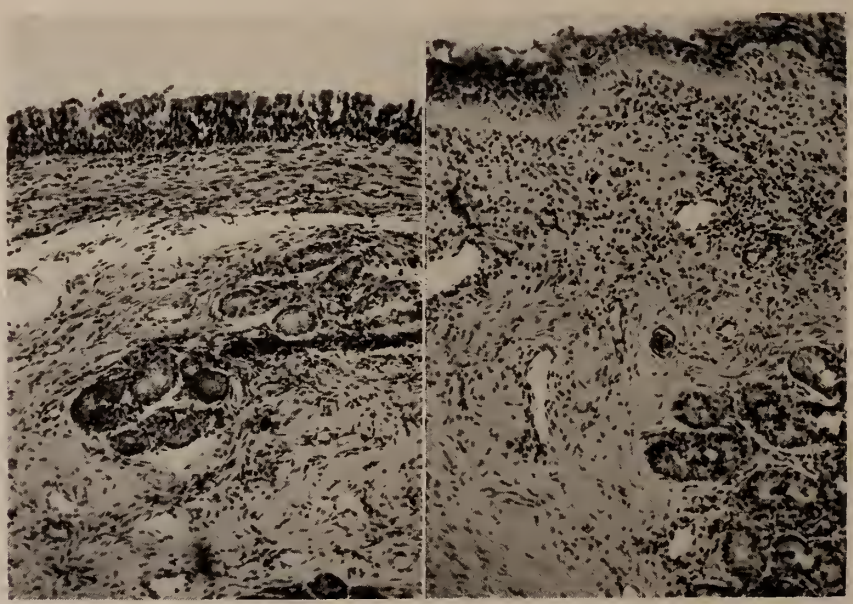


Fig. 3A. Control; section from nasal mucosa (inferior turbinate) before ionization.

Fig. 3B. Section from nasal mucosa (inferior turbinate) immediately after ionization.

egg-albumen diluted with nine volumes of water, beaten and filtered, which heat makes thick without coagulating into a compact mass, electrolysis with a zinc electrode produces a compact and adherent clot. The zinc ion is therefore the better coagulant. . . "

It has been demonstrated that the actions of ions may be varied—caustic in different degrees, antiseptic, coagulating, producing vascular changes and modifications of sensibility, conductivity, vitality, etc. There still prevails conjecture regarding the action of ionization on mucous membranes. Without claiming to present conclusive facts, the authors have become convinced that regardless of the changes which take place in the nasal mucosa through ionization, the ultimate effect is alterative. It is theoretically sound to ascribe the clinical results to alterations in the character of the mucous membrane with a function definitely modified from that preceding ionization. It hardly needs pointing out that in nasal allergic conditions the mucous membranes manifest hypersensitivity or altered susceptibility to extraneous irritants. Clinical experience justifies the theoretic concept that ionization produces an alteration in the degree of susceptibility and hypersensitivity.

Experimental Studies. The question has been repeatedly proposed whether the electric current is at all essential to the treatment of vasomotor rhinitis, that is to say, whether mere topical applications are not sufficient. Although every rhinologist has tried out any number of drugs, including escharotics, without attaining satisfactory results, and while we have already pointed out the superiority of ionization, we undertook a series of tests with the electrolyte, zinc sulphate solution, without resort to an electric current. Tampons saturated with this solution in various strengths were packed into the nose in a manner identical with that used for ionization and left *in situ* for fifteen to thirty minutes. The results were invariably negative. We, therefore, abandoned this type of experiment in favor of ionization.

Our study of zinc ionization of the nasal mucosa in vasomotor rhinitis was not limited to clinical observations. Sections were taken for biopsy from a number of patients before, during, and at various times after a course of treatments, in one instance as late as nine years.*

The accompany photomicrographs show the different conditions of the nasal mucosa in vasomotor rhinitis previous to and at various periods after treatment, the former serving as controls. We see that in the untreated cases (Fig. 3a) the lining epithelium is intact with palisade formations in some areas. Cilia are present in some areas and absent in others. The stroma is slightly infiltrated by small and large lympho-

*This section furnished through courtesy of Dr. M. H. Cottle.



Fig. 4A. Section from nasal mucosa (inferior turbinate) two weeks after ionization.



Fig. 4B. Section from nasal mucosa (inferior turbinate) six weeks after ionization.

cytes and a few plasma cells, while the mucous glands have a normal appearance.

Sections taken immediately after ionization (Fig. 3b) show the lining epithelium as definitely thickened with an increase of epithelial cells which are swelled and whose nuclei take stains more deeply. There is complete disappearance of cilia. The stroma is characterized by increased cellular infiltration as compared with that of the controls, consisting of both small and large lymphocytes, plasma cells and eosinophils. The mucous glands do not appear to have undergone any change.

Figure 4a is a section taken two weeks after ionization. The surface epithelium is intact except in a few places and is in stratified squamous cell formation. The stroma shows some ingrowth of connective tissue with a marked infiltration of small and large lymphocytes and occasional eosinophils and plasma cells.

In Figure 4b, a section from a case ionized six weeks previously, the superficial epithelium is quite intact and in stratified squamous cell formation. The subepithelial stroma is more compact than in the control, with a persistence of the increased infiltration of small and large lymphocytes over the normal, but less marked than in the section taken two weeks after ionization. Occasional plasma cells and eosinophils are seen. The mucous glands are normal.

Figure 5a is a section three months after treatment. The surface epithelium is in a pseudo-stratified epithelial formation and is virtually intact. However, no cilia are present. The stroma is quite dense with areas of hyalinization and an increased infiltration of small and large lymphocytes. There is little change, however, from that of the six weeks' section. Occasional plasma cells are seen, while the mucous glands are normal.

Figure 5b shows a section from the nasal mucosa taken nine years after ionization. The surface epithelium is in pseudo-stratified epithelial formation with some areas showing a palisade arrangement. The stroma is fairly dense with some hyalinization and a moderately increased infiltration of small and large lymphocytes and very occasional plasma cells and eosinophils. The mucous glands are normal.

Comment on the Histopathology. From the preceding it can be seen that all untreated controls are virtually identical in their histopathology. The sections taken immediately after ionization show changes in the surface epithelium ranging from thickening to partial destruction. The absence of cilia is characteristic in sections made after ionization. In all sections except one the mucous glands had undergone no perceptible change, the exception being one with granular swelling of the glandular cells.

Sections taken at various periods subsequent

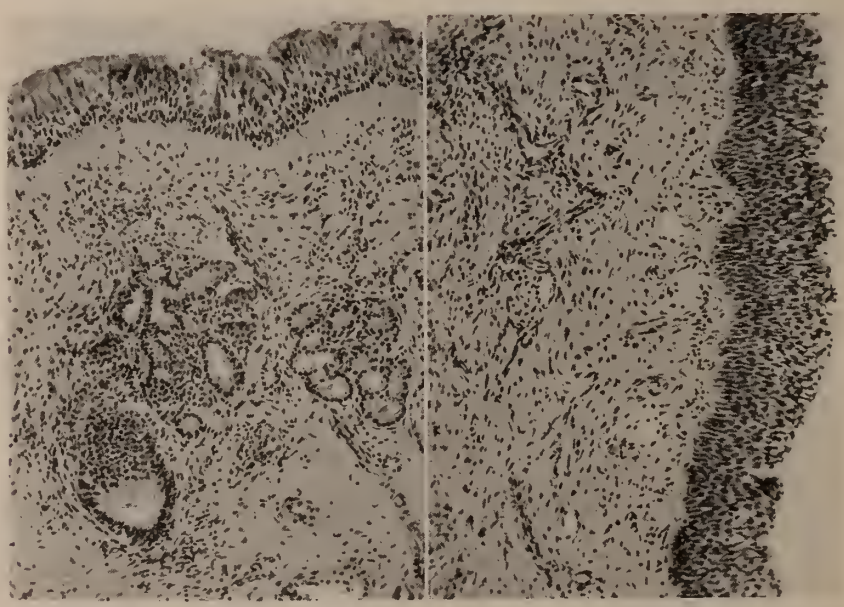


Fig. 5A. Section from nasal mucosa (inferior turbinate) three months after ionization.

Fig. 5B. Section from nasal mucosa (inferior turbinate) nine years after ionization.

to ionization showed a gradual regeneration of the surface epithelium, first as a squamous cell formation and within three months as a pseudostratified type, with the cilia persistently absent. The subepithelial stroma showed a gradual tendency to become more dense in its structure with an early marked lymphocytic reaction, subsiding slowly, but persisting to some degree even a number of years after treatment. The mucous glands showed no change in all sections but one.

It should be added here as noteworthy that sections from the nasal mucosa of several patients who had clinically not fully responded to ionization therapy, showed histopathologic pictures identical with those of the others. From this alone it can be inferred that while ionization may not always bring about pronounced amelioration of symptoms in vasomotor rhinitis, it is productive of uniform histologic effects.

In attempting to correlate the histopathologic changes with the clinical effects of the ionization treatment, it might be deduced that the symptoms of tissue waterlogging eventually subside because of the increased density of the fibrous stroma. This may account for the reduction in the turgescence of the mucous membranes with consequent improvement in the breathing function. It is difficult to explain the general amelioration of symptoms on other histologic factors that may play a rôle.

We have not lost sight of the fact that other procedures produce histopathologic changes similar to those described, nor do we dispute that with some of them favorable clinical results are sometimes obtained. We contend, however, that from the standpoint of simiplicity, safety, and prolonged palliative effect ionization should be the measure of choice.

Clinical Evaluation. Of our more recent cases of vasomotor rhinitis treated with zinc ionization, one of us (H)[8] has reported elsewhere[6] the results in a series of 32 patients treated up to July, 1934. Since that time we have had another series of 51 cases. In the first of these series approximately 50% were definitely relieved of their symptoms for more than a year. In the second, 35 or about 70% have been completely free from any symptoms to date of writing. This percentage may have to be modified in the future, but we have sufficient evidence to support our contention, that properly administered, ionization is, to say the least, a prolonged and decided palliative. Whether or not with increasing experience we shall succeed in extending the present periods of palliation cannot be foreseen, but it is certain that of the procedures at our disposal, ionization has so far produced more lasting and more gratifying symptomatic relief than any other of our therapeutic measures.

It should, however, not be overlooked that to obtain the best possible results with ionization, selection of suitable patients is of prime importance. There are many cases of vasomotor rhinitis which are complicated by sinusitis or nasal diseases not easily recognized. Under such conditions one cannot expect ionization to produce as pronounced favorable effects as in true vasomotor rhinitis, though even in complicated cases a modicum of relief may still be anticipated.

In conclusion it is pointed out, that from a theoretic point of view, ionization cannot be regarded as a specific in allergic nasal disease. When, however, it is taken into consideration that the so-called specific methods have proved more or less disappointing in their results, and that ionization has brought pronounced and prolonged relief to the majority of sufferers thus far treated, there can be no doubt that it merits wider employment in rhinologic practice.

SUMMARY

1. Zinc ionization is therapeutically superior to all forms of topical medication in vasomotor rhinitis.

2. Ionization should not be regarded as a cure, but as an effective and lasting palliative in vasomotor rhinitis.

3. Zinc ionization produces an alterative effect on the nasal mucosa.

4. Histologically, the effect of ionization is characterized by immediate destructive cellular changes with absence of cilia even after regeneration has taken place.

5. In the large majority of cases of true vasomotor rhinitis zinc ionization has yielded early relief of distressing symptoms, the palliation being sufficiently prolonged to merit wider application of the method in rhinologic practice.

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DISCUSSION

Dr. Francis Lederer, Chicago: To be content with a degree of success is but to prevent further progress. This has not characterized the work of the essayists, who have not allowed the enthusiasm of grateful patients to lead them to believe that in ionization there is a panacea. It has been shown that the method is by no means new, although the present trend of the literature, with its numerous and glowing accounts, would give one the impression of finality in progress with respect to hyperesthetic rhinitis. Hollender has modestly spoken of ionization as a "prolonged palliative." This he has applied to the clinical result, but he has evidence microscopically to show that there are destructive tissue alterations and that some of them are of a permanent character.

In his previous communications on the subject Hollender seeks to simplify technic, as he again does here, offering one without too many of the frills which sometimes serve to throw a method into disrepute, and presenting an expedient method which has given relief in a great many cases. Admittably, the method is empirical, for in the domain of medicine there art but few specifics. Nevertheless, if, as has been histologically demonstrated by the essayists, a therapeutic agent can be administered with minimum discomfort, and without too great a physiological sacrifice on the part of nasal function, it is worth while.

Several features of the problem are to be borne in mind. First, there must be a universal acceptance of what constitutes hyperesthetic rhinitis, and therefore what type of cases should respond to ionization. A hit or miss application of a method without this thought would soon make use of a physical aid as a suggestive therapeutic measure. Such efforts, as you may well know, impeded the earlier progress of physical therapy in arriving at its rightful place. Second, the essayists have rationalized the isolated chemical and electrical phenomena in an effort to establish to some degree the scientific basis for the use of ionization in vasomotor rhinitis.

Dr. M. H. Cottle, Chicago: I think it is appropriate to compliment Dr. Hollender and Dr. Gorin on their very conclusive and fine piece of work. As Dr. Hollender indicated, time did not permit him to expand on the subject. This whole question is one of proper electrolytic elaboration of a chemical action on the nasal mucous membrane. As early as 1837 hyperesthetic rhinitis was treated with chemicals, and as recently as 1935, phenol has been used in its treatment, as reported in one of the issues of the *Annals*. In that issue there are microscopic pictures which show exactly the same histopathology as Dr. Hollender has shown. I believe it proves conclusively that we have a chemical activity. However, the advantage of ionization is that the dosage is so finely regulated. Also, the danger of applying carbolic acid to the nasal mucous membrane, such as burning of the nares and dropping into the nasopharynx, which has been reported, shows the advantage of ionization. One slide I am sorry Dr. Hollender did not show. If after treatment of the right side, four to six weeks later you remove a section from the rght side and also from the left side, you will see that the infiltration of cells characteristic of ionization occurs also on the untreated side, and this is also borne out clinically, in that when you treat one side you can relieve not only the one side treated, but very frequently, objectively and subjectively, the untreated side. One important fact is the question of dosage. It is not necessary to produce such a reaction as to require hospitalization, as originally indicated by Warwick. The dosage must vary according to the severity of the symptoms at the time of treatment. About the treatment of children; the technic has to be somewhat different, and various technics have been devised.

MASSIVE COLLAPSE (POSTOPERATIVE MASSIVE ATELECTASIS)

Roe J. Maier, M. D.

CHICAGO

Massive collapse of the lung or better massive atelectasis of the lung is of very great importance because of its frequency of occurrence, its ease of treatment if recognized early, and the seriousness of its sequellae. Massive atelectasis is a clinical entity and occurs frequently enough as a postoperative complication to merit the serious consideration of the surgeons and all those concerned directly or indirectly with the care of patients suffering from wounds or injuries to the chest wall or on whom some operation has been performed, more especially some abdominal operations. Mastics, Spittler and McNamee[1] claim that atelectasis accounts for about 70% of all postoperative pulmonary complications. They have probably overrated its occurrence as will be shown in later quotations from more recent observers.

The term massive collapse is perhaps misleading and has probably led to a misunderstanding

Read before Section on Radiology, Illinois State Medical Society, Rockford, May 22, 1935.

of this peculiar lesion, the exact mechanism of which has been a point of controversy for the past forty years, for this is not a new lesion nor one just recently recognized. Pasteur described the lesion in 1890 and as far back as 1876 Pearson Irvine recognized it as a postoperative complication. Pasteur gives the following definition, "A total deflation of a large area of lung tissue of sudden onset in the absence of any signs of obstruction of the airway or any known cause of compression due to failure of respiratory power and attended by definite physical signs and symptoms."

The first description of this condition was given by Legendre and Bailly in 1844. In the same year Mendelssohn produced massive atelectasis experimentally by the introduction of shot paper and gum arabic solution. In the years that followed there were various theories and experiments until 1890 when William Pasteur of the Middlesex Hospital, London, definitely described it as a clinical entity and first used the name Massive Collapse. Pasteur continued his observations and in 1895 reported sixty-four cases of post-diphtheritic paralysis in twenty-eight of which the diaphragm was paralyzed with a fatal result in fifteen. He concluded that paralysis of the diaphragm persistent for two days leads to collapse. In the Bradshaw Lecture of 1908[2] Pasteur states "I am disposed to attach more importance to the presence of acute disease below the diaphragm, if only for the reason that the evidence at present available shows that massive collapse is not often related to diaphragmatic failure. It is generally caused by paralysis of the muscles which are direct distenders of the lung, but I have also shown that there are strong grounds for believing that reflex inhibition of the diaphragmatic movements may lead to the same result." Again in Lancet,[3] 1910, he asserts his belief that massive collapse is the result of the reflex limitation of action in one-half of the diaphragm and reported sixteen cases in two thousand patients. Since that time there has been considerable interest shown in this lesion and the literature is full of reports of cases and theories as to the etiology and mechanism of its production.

The occurrence of massive atelectasis has been variously estimated. The statistics of Pasteur would show 0.8% of postoperative complications are due to massive atelectasis. As before stated Mastics, Spittler and McNamee claim that atelectasis accounts for about 70% of all postoperative pulmonary complications. When it is considered that postoperative pulmonary complications occur in from 2.3% to 4.4% the 1.3% is perhaps a very fair average. Brunn and Brill[4] in a study of 456 major operative cases had 33 pulmonary complications, 67% of which were definitely atelectatic. The latest statistics come from Donald S. King, Boston, Mass.[5] His statistics cover a study of all the pulmonary complications occurring in the Massachusetts General Hospital during the years 1929, 1930 and 1931. He found:

	1929	1930	1931
Collapse	25	87	113
Bronchial Pneumonia	116	152	74
Bronchitis	142	92	111

It will be seen from these figures that the incidence gradually increased during the three years probably the result of increased familiarity with the lesion resulting in a greater percentage of its recognition.

Little has been proven concerning the direct etiology. It occurs three times as often in the male as the female. It follows major or minor operations or injuries. However, it most commonly follows abdominal operations or injuries in which the peritoneum is opened so that air may enter, but it may follow any minor operation, injury or shock. The type of anesthetic has little influence except that the incidence has been slightly greater when spinal anesthesia is used.

The mechanism by which the lung becomes deflated has been a point of controversy since the lesion was first described. Pasteur at first believed it to be the result of paralysis of the diaphragm. He later included paralysis of the muscles which are direct distenders of the lung. Dr. Dingley[6] in 1914 suggested a mucous plug blocking the bronchi. Dr. Brisco[7] in 1920 writing on the mechanism thought that it was the result of posture, toxemia, and the exaggeration of natural phenomenon experienced in certain types of chests. Scott[8] lists three possible mechanisms: 1. Disturbance of the vasomotor impulses. 2. Bronchiole spasm. 3. Swelling of the mucous membrane. He feels that the cause must be sought in the lungs rather than the chest wall as sec-

tion of the phrenic nerve and paralysis of the distenser muscles of the lung of one side do not produce massive atelectasis. Chevalier Jackson feels that a majority of these lesions are produced by a thick, tenacious mucous plug, blocking a main bronchus with subsequent absorption of all the air in the avleoli and bronchioles. A. L. Brown[9] of the University of California reports bronchoscopic observations in postoperative atelectasis in Mount Zion Hospital and finds them due, first, to very tenacious mucous plugs; second, large amounts of mucus in the trachea with no plug; third, acute edema of the mucous membrane of the bronchi similar to an angioneurotic edema. He reported a case in which the edema was treated with epinephrine and cocaine with immediate recovery and only a small amount of watery fluid obtained. R. H. Overholt[10] gives the following succession of events. An excessive and thickened bronchial secretion, inadequate drainage, inhibition of cough reflex, air absorption and apneumotosis. He studied the vital capacity of the lung after abdominal operations with changes in the bed position, and after the administration of morphine. He found that after upper abdominal operations the vital capacity of the lungs is reduced 64% and after lower abdominal operations 40%. During perineal or lower extremity operations the vital capacity was lowered only during the anesthetic. The vital capacity was reduced as soon as the abdomen was opened and air entered the peritoneal cavity. He found also that the bed position influenced the vital capacity very little but that a tight fitting abdominal binder would reduce the vital capacity 15%. Morphine increased the vital capacity by reducing the pain. From these findings he concluded that a marked degree of hypoventilation exists for a variable period of time after abdominal operations, that thoracic volume is decreased and expansion of the lower lobes prevented by the high position of the diaphragm, this high position of the diaphragm being the result of the opening of the abdominal cavity and the entrance of air permitting the negative intrapleural pressure to draw the diaphragm higher in the thorax. Tight abdominal binders and the reflex splinting of the abdominal musculature because of pain are also important in affecting the fixation of the diaphragm in its high position after operation. This hypoventilation probably has a very direct effect upon the accumulation of secretions, stasis in circulation and production of edema with plugging of the bronchi which finally results in massive atelectasis. Pinchin and Morlock[11] reported a case following the injection of lipiodol and Jacobaeus, Solander and Westermark[12] reported four more following injection of iodized oil. These occurred within three to fifteen minutes following the injection although in experimental animals atelectasis did not take place until the sixth hour. Recovery followed in from two and one-half to twelve hours.

As massive atelectasis rarely results fatally reports on the microscopic pathological changes in the lung are meager. On opening the chest cavity the atelectatic lung is seen to be smaller than the thoracic cavity and immediately drops away from the chest wall. The lung appears dark in color and contains no air. On section considerable thin serum can be expressed. Microscopic sections show the alveoli partially collapsed and filled with a thin fluid containing few phagocytic cells, moderate edema of the alveolar walls with little or no inflammatory reaction. The bronchioles and smaller bronchi contain a similar fluid with slight edema.

The physical symptoms and signs are usually pronounced and typical of the lesion. The onset is sudden. The patient complains of cough, pain in the chest, shortness of breath and is very restless. The temperature rises rapidly to as high as 104 or slightly over although in most cases it does not exceed 102. The white blood count rises to between 15,000 and 20,000 or even higher. Physical examination discloses a fixation of one side of the chest, narrowing and depression of the interspaces, flatness to percussion to a greater or lesser degree on the affected side, distant breath sounds or bronchial breathing. The heart and mediastinal dullness are displaced toward the affected side.

Radiologically the changes noted in the films of the chest are usually quite typical. There is a dense lobar consolidation or a massive consolidation of an entire lung, homogeneous or only slightly mottled in character. The heart, trachea and other mediastinal structures are displaced toward the involved side. There is a narrowing of the chest on the side involved with a decrease in the width of the intercostal spaces. The diaphragm is elevated and immobilized.

The differential diagnosis is usually not dif-

ficult as no other lesion in itself produces the decrease in intercostal spaces, the elevation and fixation of the diaphragm and the retraction of the heart and mediastinal structures to the affected side. However, previous pathology may so change the picture that it may be very difficult or impossible to differentiate it from a massive tuberculosis, a lobar pneumonia, a pleurisy with an effusion or an empyema, although all of these lesions in themselves produce a picture which is entirely different when uncomplicated by previous lung pathology.

Massive tuberculosis usually presents evidence of a tuberculous lesion on the opposite side, cavity formation, and dense fibrous bands at the point of primary infection. Retraction of the heart, mediastinal structures, ribs and diaphragm may or may not occur depending upon the duration of the disease.

In lobar pneumonia there is little or no retraction on the affected side although fixation is present.

In pleurisy with an effusion or in an empyema the heart and mediastinal structures are usually displaced toward the unaffected side, the amount of displacement depending upon the quantity of fluid in the pleural cavity and upon the presence or absence of pleural adhesions or encapsulation of the fluid. In case adhesions or encapsulation are present and there has been a previous retraction toward the affected side the picture may be very confusing as the retraction and density would point to a massive atelectasis. In this case the history, physical findings and the attempted withdrawal of fluid from the affected side is necessary to make a final diagnosis.

The prognosis is uniformly good providing other complications do not intervene. Massive atelectasis terminates by crisis or lysis. In the first instance the affected lung may be completely expanded in from 12 to 24 hours leaving only a very slight increase in density over the lung field on x-ray examination and a few rales may be heard which may remain for a few days. Symptomatically there is no evidence of the lesion. If by lysis it may take from one week to ten days for the affected lung to become expanded, the heart, mediastinal structures and diaphragm to return to normal. The temperature, cough, and other physical symptoms disappear gradually as the lung becomes more fully expanded. Considerable time may elapse before the lung completely returns to normal on radiological examination, although all other signs and symptoms have disappeared. Due to the collapsed condition of the lung, poor ventilation and poor circulation, a bronchial pneumonia often follows hard upon the heels of the collapse and may spread to the entire affected lung. In such cases the prognosis is the same as that of a bronchial pneumonia which is always grave. Lung abscess, pleural effusion and empyema do not follow massive atelectasis except after a bronchial pneumonia has set in. A fatal termination in an uncomplicated massive atelectasis is extremely rare. However, Francis B. Doyle,[13] Brooklyn, N. Y., reports a case in which massive atelectasis occurred in both lungs in a colored girl, age 24, following a cesarean section, with a fatal termination.

Most of the treatment has been aimed toward better ventilation of the lungs immediately following operations or injuries or immediately upon the onset of collapse. One observer places all of his patients in an oxygen tent immediately following operation using a high concentration of oxygen and carbon dioxide to stimulate better aeration and deep respiration. Bronchoscopic examinations reported by A. L. Brown,[9] University of California, during the administration of carbon dioxide would seem to show that carbon dioxide first increases the rate and depth of respiration, second, by this increase in depth of respiration the walls of the bronchi are caused to approximate one another tending to free mucous plugs or induce violent expiratory effort expelling any plugs that may be present. Chevalier Jackson advised bronchoscopic examination with removal of mucous plugs. As before stated epinephrine and cocaine have been used to reduce the acute edema when this was apparently the cause of the obstruction. The administration of morphine seems to be always advisable to reduce the pain so that the patient will cough and breathe more freely preventing the accumulation of secretions and mucous plugs in the bronchi. Tight abdominal binders should be removed as it has been proved that they inhibit the proper ventilation of the lungs by decreasing the vital capacity. Above all the patient should not be allowed to lie in one position over a long period of time but should be

rolled from side to side to prevent collapse and after the onset the patient should be forced to lie on the unaffected side from 15 to 45 minutes four to five times daily to promote expulsion of mucous plugs and secretions and induce expansion of the affected lung. A sharp slap on the back of the affected side is often of assistance in expelling the plug of mucous.

Th following three cases illustrate typical history, course and termination:

Mr. N., aged 32 years, entered the hospital May 19, 1931.

Chief complaint, pain in the right lower quadrant of the abdomen for three days. Past history, negative.

Physical examination negative, except for slight rigidity over the appendix. White blood count, 14,500. Temperature 98.6.

The patient was operated on 5-19-31 at 9:30 A. M. with a gridiron incision, appendix was removed, wound closed without drainage, diagnosis subacute appendicitis.

After returning to the room the patient had the usual postoperative nausea and slight vomiting and pain over the incision. The following day, 5-20-31, the temperature rose to 100, the pulse 108, respirations 24. Later in the day temperature rose to 101.8, the pulse dropped to 96 and respirations to 22. At midnight, 5-20-31, the temperature was still 101.4, the pulse had risen to 112, respirations to 28. At 2 A. M., two hours later, temperature 101.8, pulse 116 and respirations 36. At 6 A. M. on 5-21-31, temperature had reached 102.4, pulse 120, respiration 40. At this time the patient was markedly cyanotic, complained of a stuffy feeling in the chest with pain; respirations were shallow and difficult. The patient was examined in the x-ray laboratory at 8:00 A. M. with the following findings: The heart, aorta and mediastinal structure were displaced to the right, the diaphragm was elevated on the right side, the entire right lung field, particularly over the upper lobe was increased in density, typical of a massive atelectasis of the lung. The patient was returned to his bed with orders that he lie on the left or unaffected side for 45 minutes every three hours. At noon the temperature had risen to 103.6, pulse 144, respiration 36. At 4 o'clock temperature had risen to 104.2, pulse 142, and respiration 36, and a white blood count of 17,900. Cyanosis, however, at this time was beginning to disappear. Most of the pain and difficulty in respiration had also disappeared. The patient was returned to the x-ray for re-examination with the following report: Re-examination of the chest shows a marked improvement, the right lung being fairly well expanded at this time. By midnight of 5-21-31 the temperature had dropped to 100, pulse to 96, respiration to 26. The patient was comfortable, was expectorating large quantities of thick, tenacious mucus and was apparently on the road to a quick recovery. A re-examination with x-ray 18 hours after the onset showed the right lung still more expanded and another examination, 5-25-31, showed the right lung almost completely expanded. There was only slight decrease in the aeration on the right side. The patient was discharged 5-29-31 apparently completely recovered. This case illustrates the acute onset, the severity of symptoms and termination by crisis. It also illustrates how quickly the condition is relieved by simply rotating the patient and forcing him to lie upon the unaffected side.

The second case was that of Mr. M., aged 31, who entered the hospital October 25, 1932, complaining of a post-operative hernia of 27 months duration, following an operation for ureteral calculi, December, 1930.

Previous history and physical examination were negative except for the hernia. Temperature was 98, pulse 80, respiration 20. He was operated on, 10-25-32, under ethylene anesthesia, the old scar was resected, the abdominal layers dissected and repaired by overlapping.



Fig. 1. Case 1. Onset. Height of atelectasis.



Fig. 2. Case 1. Five hours later.

The next morning, 10-26-32, the temperature had risen to 100.2, pulse 96, and respiration 22. The patient complained of pain in the chest at this time. The next morning, 10-27-32, the temperature was 100.6, pulse 108, respiration 32, there was severe pain in the chest, severe cough and slight cyanosis. An x-ray examination at this time showed a marked increase in density involving the entire left lung field with displacement of the heart and mediastinal structures to the left and elevation of the left side of the diaphragm, indicative of a massive atelectasis of the left lung. This patient was returned to bed and ordered to lie on the unaffected side for 45 minutes every three hours. The following morning, 10-28-32, the temperature had dropped to 99.8, pulse to 88, respiration to 24, patient at this time was expectorating mucus freely, coughing, but with no cyanosis and little or no pain. An x-ray examination at this time revealed a definite expansion of the left lung, although the heart and mediastinal structures and the diaphragm were still displaced. By the following morning, 10-29-32, the temperature, pulse and respiration had returned to normal. This patient was again x-rayed, 10-31-32, showing only slight impairment in the ventilation of the left lung. There were no further symptoms referable to the chest and the patient was discharged, 11-11-32, apparently recovered. This is another case that terminated by crisis with the lungs returning to normal more slowly as determined by x-ray examination.

The third case, Miss B., aged 37 years, entered the hospital July 23, 1931.

Chief complaint was pain in the epigastrium which radiated to the back, was severe in type, disabling and accompanied by nausea and vomiting; first attack three years ago.

Previous history: Had an old tuberculosis in the right upper lobe which was treated with artificial pneumothorax. History otherwise negative. At this time x-ray examination showed a markedly thickened pleura, a limited respiratory excursion, heart and mediastinal structures displaced to the right. There was no evidence of an active lesion. The examination also showed a pathological gall bladder containing calculi.

White blood count, 9,650; temperature, 99; pulse, 76; respiration, 20.

She was operated on 7-24-31, the gall bladder containing thirty-five calculi was removed along with the appendix.

On the morning of 7-25-31 the temperature had risen to 100.6, pulse 70, respiration 24. The next morning, 7-26-31, temperature had risen to 102, pulse 80, respiration 24. The patient complained of a slight cough and expectorated a frothy mucus. The next morning 7-27-31, temperature, pulse and respiration continued the same, but the patient complained of a very severe cough and appeared very weak. The next morning, 7-28-31, the temperature had risen to 103.4, pulse to 110, and respiration to 36. The blood count at this time had risen to 28,100. The patient showed moderate cyanosis, still had a severe cough and complained of severe pain on the right side. An x-ray examination at this time showed an increased density over the right lung field with evidence of the mediastinum and heart being retracted a greater degree to the right than shown in the previous examination. The intercostal spaces were also decreased in width, indicating a massive atelectasis. This patient was also rotated after returning to bed with the result that by the next morning, 7-29-31, the temperature, pulse and respiration had started to reduce, the patient enjoyed a good dinner and was free of pain, although still coughing and expectorating quantities of tenacious mucus. X-ray examination showed partial expansion of the affected lung. This was followed by a steady improvement and the patient was discharged, 8-8-31, in good condition.

None of the above cases terminated by lysis. They illustrate the efficiency of changing posi-



Fig. 3. Case 1. Eighteen hours after first examination.

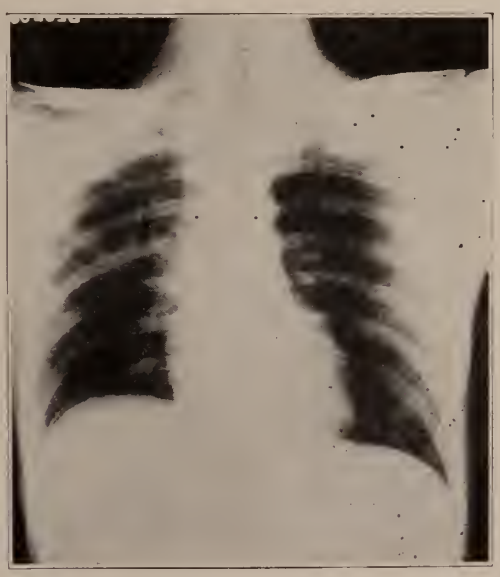


Fig. 4. Case 1. Chest five days after diagnosis was made.

tion and rolling on the unaffected side in the treatment of massive atelectasis. That the anesthetic appears to have little or no effect upon the occurrence is also illustrated as ether was used in the first case, ethylene in the second and avertin and local infiltration was used in the last case on account of previously known lung pathology.

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DISCUSSION

F. Flinn, Decatur: Since I received a copy of Dr. Maier's paper a few weeks ago, I have seen one case of massive collapse in a child three years old, three weeks postoperative, operated on for ruptured appendix. The collapse occurred three weeks after the operation. This case is recovering by lysis. I don't know what the final outcome will be or how long it will take. I rayed it about three days ago and it had expanded about seventy-five per cent.

Dr. Ralph G. Willy, Chicago: I enjoyed Dr. Maier's paper very much. He did not leave a great deal to discuss, merely a few things to emphasize. It is too bad this paper is confined to a special meeting because I feel the internists and surgeons are as much interested in this subject as we are. The frequency, as given by various writers, varies a good deal because we have no standard of what constitutes a collapse. If we have a patient with gall-bladder or stomach operation and x-ray these patients immediately after they come off the operating table, then two or three times a day for about 72 hours, we will find a very large percentage of them will show some evidence of mild collapse, particularly if we take as a standard an elevated diaphragm, the right as a rule, with cloudiness of the base. I believe that this is really a mild collapse with not enough negative pleural pressure to draw the mediastina over to the affected side.

We followed a number and found this as the first sign. In twelve hours or so, these patients would show definite collapse by displacing the mediastinum toward the right side. The statistics given are usually given on general cases, and x-rays are usually taken only on those that merely show symptoms. If all patients were x-rayed, we would find a very high incidence of some degree of collapse. Pasteur, in his paper, rather emphasized the suddenness of onset of this lesion. I feel that is probably wrong, that it takes quite a number of hours for the thing to really develop into a marked collapse. We followed a series in 126 gall-bladder operations and found the first sign was the elevated diaphragm, the cloudiness. Twenty-four hours later we would find some degree of collapse in the vast majority of these patients. All these patients, particularly following gall-bladder, which run a little temperature, show a very high percentage of some degree of collapse. The important thing is not the percentage but knowing how to prevent any serious complications from this lesion. While morphine does increase the vital capacity, it also invariably reduces the cough reflex and aids in the production of collapse.

We find some surgeons using atropin, preoperatively, particularly with children with respiratory infections. I think that is a mistake. Those patients would be better if we gave ammonium chloride to lessen the viscosity of the sputum rather than to increase by use of atropin. The use of carbon dioxide and oxygen, postoperatively, particularly as used at the Massachusetts General Hospital, has been of some aid in the prevention of collapse but not so great. The most important thing, I think, is making the patients change positions, not allowing them to remain in one position more than an hour at a time.

The prognosis is not entirely unguarded. I have seen two patients die from postoperative collapse, one following a hysterectomy. We rayed the patient and told the surgeon he had a collapse on one side, that he didn't need to particularly worry about this patient, because most of the patients got well. Six hours later there was a collapse of both sides and the patient died.

I have once seen a lung abscess following a collapsed lung.

The interesting fact is that this lesion is not uncommon in medical cases. Any serious illness in a child which necessitates its lying flat on its back, with a freely movable mediastinum may result in some degree of collapse. In adults, I think that is also true, particularly in lesions such as cerebral hemorrhage, where a patient is comatosed and allowed to remain in one position. These patients will develop some degree of collapse, usually confined to the lower lobes and posterior portions. Pathologically with patients with so-called hypostatic pneumonia, you will find the majority of these lesions are not hypostatic pneumonia but really atelectasis. A male with syphilitic aortitis had about seven attacks before the terminal one. They had been called acute edema of the lung until he was raised in

one of these acute attacks and found to have a massive collapse of one lung. He was rayed a second time during one of these attacks and again he had a collapse of the lung. Probably all of these attacks were collapse of the lung. I think that is true in possibly a certain percentage of all these cases we call acute edema of the lung. Another case was that of postoperative tetany. A woman, about four or five weeks after operation, had a bilateral collapse and died as a result of the collapse.

I have enjoyed Dr. Maier's paper and think it is a lesion that should be emphasized. We, as radiologists, I think, should emphasize this in connection with our various staffs at the hospital, so they will recognize the lesion. I was impressed with that particularly at Wesley in 1926, when we were working on this. The interns got so they were recognizing very mild degrees of collapse and recognizing them very early.

A CLINICAL VIEW OF BONE MARROW DEPRESSION

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Since Schultz described and named the condition known as granulocytopenia, a great deal has appeared in the literature with regard to its characteristics and its etiology. There are those who believe the condition to be a disease entity while others consider it only an atypical response to an outside stimulus. Some observers believe the disease to be caused by an infection while others attribute the picture to a depression of the bone marrow due to drugs. Kracke[1, 2, 3] believes it to be a disease entity produced by drugs of the benzene ring, and feels that infection may also be an etiological factor. V. Levine,[4] on the other hand, after considerable experimental work on rabbits in which he gave large amounts of drugs of the benzene ring, was unsuccessful in producing any bone marrow depression. Jackson[5] in studying a series of cases of agranulocytosis reports as follows: 26% of the cases may have been caused by drugs; in 30% of the cases drugs showed no causative relation to the disease despite the large quantities taken; 44% of the patients received no drugs but presented typical findings of agranulocytosis. Beck[6] believes that pyogenic organisms exert a chemotactic effect and at the same time introduce a depressant, or myeloid factor; suggesting that an organ or tissue extract may supply the factor which is lacking. Weiss and Goldbloom[7] feel that a careful morphological examination in granulocytopenia will show evidence of what is really dysplastic granulocytemia. Markowitz[8, 9] reports six cases of various blood dyscrasias seemingly induced by various forms of outside stimuli; that these stimuli produced varied reactions which were interpreted as individual symptom complexes rather than disease entities. Jaffe[10] is of the opinion that bone marrow depression and granulocytopenia may be explained on an infectious basis in an individual who has an altered body constituent which reacts in an atypical manner.

From clinical observation I have noted that infection is an associated factor in granulocytopenia but I have never been convinced that infection was the cause. I have further noted that drug ingestion may be associated with granulocytopenia but have seen cases in which no history of drug ingestion could be obtained. In a series of cases of bone marrow depression, all proved cases of granulocytopenia, I have noted clinically that while drug ingestion over a long period of time may have been a causative factor in some cases, there are other cases in which no drugs were taken at any time, or were taken only at the onset of illness. Even in the cases where there has been a history of drug ingestion, prior to the onset of the granulocytopenia, it is reasonable to assume that the drugs were taken in the hope of relieving symptoms arising from some previously existing condition.

I have divided this series into three clinical groups:

Group A. Those patients in whom a history of drug ingestion at any time was completely denied.

Group B. Those patients who admitted drug ingestion only for the relief of symptoms at the onset of the granulocytopenia.

Group C. Those patients who admitted the use of drugs over a long period of time prior to the onset of the granulocytopenia.

The following cases illustrate the clinical observations in each of these groups:

Group A. Those in which a history of drug ingestion was denied.

Case 1. L. B., a man aged 25 years, complained of a severe sore throat which upon examination revealed extensive gangrenous areas over the mouth and throat. His temperature was 103 degrees, leucocyte count numbered 3500, only 18% of which were granulocytes.

Read before Section on Medicine, Ill. State Medical Soc., Rockford, Wednesday, May 22, 1935.

R. B. C. was 4,960,000, hemoglobin 90%. He was hospitalized and given pentnucleotide. Within a few days he had marked hemorrhages from the mucous membranes and his counts were carefully watched for evidence of acute leucemia. His total red count remained fairly high but his white count dropped to 2000 with only 4 to 6% granulocytes and no immature forms. His hemorrhages were controlled, and the gangrenous throat seemed to improve during the second week of illness, but the total count continued to drop. On the twelfth day of his illness the total count numbered 1020 cells and no granulocytes could be found. From this point his clinical picture was that of a rapid down hill course; mucous membranes in the mouth became very necrotic and foul smelling, there was hemorrhage from the gums and the temperature rose to 104 degrees. During the last three days of his illness no granulocytes could be found, the total white counts ranged from 750 to 1020 cells and he went on to a fatal termination on the fourteenth day of illness.

No history of drug ingestion could be elicited. His occupation was that of a bookkeeper, his habits were good, he had always been in good health and was not known to take medication of any kind. The treatment during his illness consisted only of pentnucleotide and repeated transfusions.

Case 2. C. F., a middle aged female, seen twenty-four hours before fatal termination complained of a sore throat which improved in a few days. The general condition of weakness however prompted her to call her family physician who first saw her on the sixth day of her illness. At this time her temperature was 102 degrees, her throat was reported red with only one small necrotic patch on one tonsil, the skin presented an icteric tint and the general condition seemed poor. No blood work was done. On the tenth day of illness the patient was hospitalized. Examination of the throat at this time was negative, temperature was 103 degrees, spleen was definitely enlarged, there was a foul smelling vaginal discharge and necrotic patches were seen on the vaginal membranes. Total white count was 1300 with only 4% granulocytes. R. B. C. was 4,320,000, hemoglobin 80%. She continued to go down hill, the total count dropped to 850 with complete absence of granulocytes and she died on the thirteenth day.

No history of the ingestion of drugs could be elicited. Her occupation was that of a housewife on a small farm. She had four grown children. She had always lead a very sedentary life, had never been subject to headaches and was not known to be in the habit of taking medicines. At the onset of her illness she was given small doses of aspirin and sodium bicarbonate. During her stay in the hospital she was given only small doses of aspirin and morphine.

These two cases demonstrate individuals who at no time took any drugs. The small amount of aspirin taken only at the onset cannot be considered of any significance.

Group B. Those who admitted drug ingestion in an attempt to relieve symptoms of the present illness.

Case 1. M. K. a housewife, aged 43 years, was seen in consultation August 11, 1933. She gave the following history: Onset four days before the general malaise, some headache and a sore throat. The patient, a wife of a physician, resorted to pyramidon and alkalies together with a gargle for relief of her complaints but she became progressively worse and was admitted to the hospital with the characteristic necrotizing process involving the nasopharynx, tonsils and extending onto the soft palate. Family history was negative. Past history unimportant except for a pelvic laparotomy with good recovery ten years before and surgical drainage of the gall bladder five years previously. Physical findings were those of an acute inflammatory process; temperature 105, albumin, hyaline and granular casts in the urine; blood pressure 115/75. White blood count was 1950 with a differential showing a complete absence of granular cells; 4,200,00 red cells and 82% hemoglobin. White count every six hours with a differential showed a total absence of granular cells, the count falling in four days to 580 at which time the patient expired.

Case 2. I. S., a student nurse, aged 20 years, was admitted to the hospital with temperature 102, pulse 120, respirations 24, complaining of sore throat and pain in both ears. This young woman gave a history of malaise and sore throat beginning twenty-four hours before admission to the hospital, which had, in her opinion become progressively worse in the past eight hours. The patient's past history was entirely negative. Physical examination record on admission to nurses training about a year before the present illness was insignificant except for a total white count of 3800. The past history was irrelevant and there was no history of ingestion of drugs until the onset of the present complaints, at which time the patient had availed herself of the use of pyramidon and phenacetin. The white count on admission showed 2800 cells, 96% lymphocytes and 4% monocytes. The R. B. C. was 4,640,000, the hemoglobin 86%. The white count fell progressively to 700 with a total absence of granular cells. Case terminated fatally at end of sixth day.

These two cases demonstrate individuals who previous to the onset of the present illness emphatically denied the use of drugs. Only with the onset of complaints of the present illness did they resort to drugs of the benzene ring.

Group C. Those who gave a history of drug ingestion over a long period of time prior to the onset of the present illness.

Case 1. Dr. E. S. S., aged 65 years, gave a history of general malaise, shortness of breath and palpitation on exertion for the past two years. He was examined about a month before the onset of the present illness at which time the red count showed 3,200,000 red cells with 70% hemoglobin and 3,200 white cells with a normal differential count. Heart tones were faint and an E. K. G. revealed a left ventricular preponderance

and a moderate depression of the T waves in the first lead. Two days before admission to the hospital he complained of a sore throat which grew steadily worse. At the time of admission to the hospital the patient was perfectly clear mentally but prostrated physically. He showed a definite angina in the nasopharynx but no evidence of ulceration or exudate. Temperature on admission was 103 degrees, pulse 120, respirations 30. White count 1100 with 97% lymphocytes, 1% metamyelocytes and 2% neutrophils. Patient stated on admission that he had been subject to frequent and repeated headaches for which he was in the habit of taking pyramidon and phenacetin at rather frequent intervals for the past two or three years. The course in the hospital was progressively down hill, white count falling to 400 with a final differential of 99% lymphocytes and 1% neutrophils.

Case 2.—H. F., occupation farmer, aged 45 years, was admitted to the hospital February 11, 1935, with a headache, general malaise, sore throat and progressive weakness. He dates the onset of his complaints as January 2, 1935, with symptoms of backache, general muscular pain, headache and a blocking in both nostrils. This condition lasted for several days during which time the patient was given a combination of phenacetin, pyramidon, acetylsalicylic acid and caffein regularly for five days. He states that the recovery from this acute infection in January was slow and that he had periodic headaches and nasal discharge for the relief of which he took the above prescription repeatedly since. His past illnesses showed a definite history of rheumatism as a child and a duodenal ulcer which was managed medically since May, 1933; frequent and repeated infections in the nose and throat with similar occurrences of the above complaints early in 1934. On admission to the hospital the patient was severely prostrated, temperature 102, pulse 110, blood pressure 110/90 and a white count of 1200, 98% lymphocytes and 2% neutrophilis. The R. B. C. was 4,890,000 and hemoglobin 92%. During the next three days, six hour white counts showed a total absence of granular cells and a total drop in white count to 900 at which time the white count began to rise and the patient showed general improvement.

These two cases demonstrate a group of patients who have used drugs containing the benzene ring for the relief of the symptoms which have existed for a long period prior to the present illness.

It is interesting to note that in two of the six cases reported the total white counts were normally low. One case, a year before death, successfully passed a physical examination to enter nurses training, but had a total white count of only 3,800. The other case, examined a month before the onset of the granulocytopenia had a total white count of only 3,200.

These cases picked from the series and supported by current literature suggest to me that granulocytopenia is a disease entity of bone marrow depression which may be precipitated but not caused by infection or drugs. This bone marrow depression may be an individual characteristic in a subject who retains a form of the juvenile type of bone marrow in adult life. Either his total white count remains comparatively low or his granulocytes, as found in the juvenile, are relatively low in number. In an individual so constituted, bone marrow depression may occur upon which, per se, in another individual with a normal bone marrow would have very little, if any, effect.

It seems reasonable to assume that in such an individual bone marrow depression can easily be precipitated, by either infection, drugs or any other outside stimulus which in a normal individual produces no unusual bone marrow response; that either the infection was superimposed upon an abnormal bone marrow or produced an abnormal response in a juvenile bone marrow; that drugs taken over a long period of time are most likely taken for relief of symptoms existing long before the onset of and not the cause of granulocytopenia.

CONCLUSIONS

1. Granulocytopenia is probably a disease entity.
2. This disease entity may rest in a form of juvenile bone marrow carried over into adult life.
3. In an individual with this type of bone marrow drugs and infection may be a precipitating factor in the production of granulocytopenia.

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DISCUSSION

Dr. Victor Levine, Chicago: I think Dr. Stevenson deserves a lot of credit for saying that granulocytemia is present in a great number of cases in which there is no history of drug ingestion. Lately the literature has been full of cases of these conditions based on drug ingestion. There is a group in which drug ingestion can be definitely excluded.

Dr. Stevenson referred to some work I have done on rabbits. They were given varying doses of pyramidon without the production of agranulocytosis. Of course, negative work does not clear up the problem but I can say that I studied the bone marrow in all of these animals and found no change from the normal. The rabbits die from the toxic effect of overdoses of pyramidon but they do not have the bone marrow changes characteristic of agranulocytosis. It is necessary to have these bone marrow changes for an exact diagnosis. A great many recent reports have overlooked this. Kracke says he can produce agranulocytosis in all rabbits by injecting a certain drug. Madison, on the other hand, feels that any positive results are just accidents. These are the opposing views. The idea of Kracke is that pyramidon is a toxic drug which will produce disease in practically every patient who takes large enough doses. Madison feels that certain people are hypersensitive to the drug or have unusual constitutions which make them susceptible and the condition may develop when some unusual stimulus is brought to them. Occasionally this stimulus does seem to be pyramidon. In a great many cases the condition develops without taking the drug. Incidentally Kracke feels that the causative factor is the benzene ring but a recent article in the Journal of Laboratory and Clinical Medicine by Herz reports that any toxic effect of pyramidon may be due to the second ring present, the pyrazolon ring, rather than to the benzene ring.

Dr. B. Markowitz, Bloomington: Up until a few years ago I was inclined to believe that all bone marrow depression and leukemias were best explained on an infectious basis. That the bone marrow response to infection was most likely the underlying factor in the production of both leukemia and granulocytopenia. Then later I reported a number of cases of various reactions to salversan in anti-luetic treatment. While the reaction in one patient was that of bone marrow depression another developed leukemia. Dye poisoning similarly produced a definite granulocytopenic picture in one patient. Dr. Stevenson's report indicates that we must not be too dogmatic in this problem. While the literature is full of reports blaming drugs of the benzene ring for bone marrow depression, many cases, such as Dr. Stevenson reports, are definitely proved granulocytopenia and have no history of any drug injection. It is not proved that the benzene ring drugs or any drugs are definitely responsible for the many cases of granulocytopenia reported in recent years. I think Dr. Stevenson has very ably presented a rational view of the subject: that there exists a certain predisposition on the part of the patient in that he has a peculiar bone marrow response. Just as some people retain fetal lobulations of the kidney it is possible that others retain a juvenile type of bone marrow which in adult life responds abnormally to an outside stimulus, whether it be drugs, infection or anything else.

TRACHEOTOMY: INDICATIONS. TECHNIQUE. POSTOPERATIVE MANAGEMENT

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It is hoped that I may be forgiven for bringing up a subject that is by no means new, tracheotomy having been practiced, according to Sir St. Clair Thomson,[1] for over two thousand years, but when one considers the reluctance, on the part of many physicians of having the operation performed on their patients, and the disastrous results following the operation, when too hurriedly or improperly performed, one may perhaps be pardoned for reviewing the subject and adding what he can to it. One sees cases of laryngeal stenosis, in which the patients have suffered more or less constantly for want of oxygen for days, weeks, or longer, when the margin of safety between life and death from suffocation scarcely exists.

These patients with laryngeal stenosis may breathe fairly well when perfectly quiet, but, if slight added congestion about the larynx occurs, or if for any reason, such as excitement or exertion, the organism requires more oxygen than may be obtained readily, the patient's face assumes an expression of anxiety, inspiration becomes noisy, often with typical laryngeal stridor, the supraclavicular and intercostal spaces are retracted, the accessory muscles of respiration stand out sharply defined in the neck, and the skin becomes moist, pale, and often cyanotic.

In contrast with this state of affairs, the immediate improvement in the patient's condition after tracheotomy is usually dramatic. The patient has a short attack of coughing with the expulsion of some blood and retained secretions or exudate, followed by tranquil breathing, return of color to the skin and lips, and more often than not by a smile of relief.

I do not mean to give the impression that tracheotomy should be undertaken lightly, or that it should be undertaken for the relief of slight

Read before Section on Eye, Ear, Nose and Throat. Illinois State Medical Society, May 22, 1935.

and transient dyspnea, above all tracheotomy should be avoided in cases of dyspnea due to cardiac or pulmonary disease in which the mechanical factor of laryngeal stenosis plays little if any part. Also, it is not to be expected that tracheotomy will give relief to cases of foreign body in the trachea or bronchi below the site of operation.

The causes of laryngeal stenosis for the relief of which tracheotomy may be required are many. One may mention:

1. Spasmodic forms of stenosis.
2. Impacted foreign body.[1]
3. Edema of the larynx which may be traumatic or inflammatory.
4. Stenosis may occur in diphtheria, either as a complication of the inflammatory stage, in the form of edema or obstruction by a membrane,[2] or as a sequal,[3] in the form of ankylosis of the arytenoids, cicatricial changes, as adhesive bands and subglottic web formation, and postdiphtheritic laryngeal paralysis with the cords in adduction.
5. In typhoid, perichondritis with immediate obstruction from the swelling, or later stenosis, due to fixation of the arytenoids or other cicatricial changes, may occur.
6. Stenosis due to syphilis may be caused by gumma or, more frequently, by cicatricial changes.
7. Tuberculosis[4] may give rise to obstruction from tuberculous infiltration, fixation of the cords in or near the midline, or cicatricial changes.[5]
8. Perichondritis, in addition to the causes enumerated above, may arise as a result of trauma, or from infections the source of which one may be unable to determine.
9. Hypertrophies or hyperplasias of the tissues in or about the larynx; those which are supraglottic are usually polypoid.
10. Neoplasm in and about the larynx are fibromata, myxomata, chondromata, and sarcomata, which are relatively rare, and carcinomata and papillomata, which are relatively common.
11. Pressure of enlarged cervical glands, usually due to tuberculous or carcinomatous involvement.
12. Bilateral laryngeal paralysis[5] may be caused by bulbar lesions or tabes, or may follow thyroid operations. When this condition occurs immediately after the operation, it is due to injury of both inferior laryngeal nerves, when it occurs a few hours later, it is due to edema, and when it occurs weeks later, it is due to contraction of scar tissue about both inferior laryngeal nerves.
13. In addition to the causes of cicatricial stenosis cited above, are those due to trauma, the most frequent cause of which is high tracheotomy or laryngotomy.
14. Watkins[6] reports a case of chronic enlargement of the tonsils requiring tracheotomy.

One may summarize by saying that tracheotomy is indicated as a temporary measure where intubation is impracticable, as in impaction of a foreign body in the larynx, and where there is not sufficient time for obtaining an intubation tube and someone competent to introduce it, and, as a permanent measure, when the stenosis of the larynx is more or less permanent.

There has been much discussion about the advantages and disadvantages of high and low tracheotomy, and the definition of what constitutes high and of what constitutes low tracheotomy seems to vary. Some speak of high tracheotomy as an operation through the cricothyroid membrane, which is in reality a largyngotomy, others designate operation above the thyroid isthmus as high tracheotomy, while still others define high tracheotomy as an operation through the first two tracheal rings. As to the relative merits and demerits of the two procedures, some claim that there is less danger of hemorrhage[7, 8] in high tracheotomy; others that there is less danger of hemorrhage in low tracheotomy. Some point out that high tracheotomy, owing to the more superficial position of the upper part of the trachea, is more easily performed. Others point to the proximity of the tracheal wound to the laryngeal lesion, the frequency with which high tracheotomy is followed by cicatricial bands and web formations in the glottis, and to the frequency with which one is obliged to do a low tracheotomy as preliminary to the treatment[5] of these cicatricial changes later, and to the fact that high tracheotomy is more difficult to conceal by the clothing, thereby producing an economic and social disability, as reasons for preferring low tracheotomy. In recent years, there has been a gradual inclination on the part of laryngologists toward low tracheotomy, until today many laryngologists practice it exclusively. Indeed, Jackson[9] states that high tracheotomy,

even for dire emergency, should not be taught. He has described a method for use in such cases, which consists essentially in cutting down on the trachea without regard to hemorrhage and with the finger in the pool of blood incising the trachea, introducing the tracheotomy tube, and then arresting the hemorrhage.

The care with which a tracheotomy is done will vary with the urgency of the particular case. One may be called upon to perform the operation on the bed or on the floor with a pen knife, or whatever sharp instrument happens to be at hand, and without regard to asepsis. Usually one has sufficient time to do the operation under proper surgical conditions.

Morphine and other opium derivatives are contraindicated preliminary to operation because of their depressing effect on the respiratory center. General anesthesia is contraindicated for obvious reasons.

The operation which has been the most satisfactory in my hands is carried out as follows:

Under favorable conditions, after preliminary infiltration of the operative field with 1 to 2 per cent. novocain solution to which a few drops of adrenalin have been added, a horizontal incision is made through the skin and superficial fascia just above the sternal notch. Bleeding vessels are caught with hemostats. Blunt dissection is now carried out by separating the scissors pressed on the tissues in the midline until the trachea is reached, a wide exposure of which is not practiced in order not to open up spaces for infection. The inferior thyroid veins or thyroid ima artery may be encountered in this dissection, and, if they lie so that they may be eroded by contact with the tracheotomy tube, they should be ligated. The thyroid isthmus may rarely be so developed or so low as to require division and ligation; the writer has not encountered such a case since he has been practicing this particular method. At this stage slight extension of the neck is advantageous. A few drops of 5 per cent. cocain solution are injected into the tracheal lumen, and while waiting for the cough to subside, bleeding vessels are ligated, and skin sutures of silk are placed but not tied. The trachea is now pulled upward with a hook and a vertical incision is made from below upward and as low as is practicable in the midline of the trachea. I have not found it necessary to remove a crescentic margin from the incised tracheal rings, as advocated by some surgeons; indeed, it is sometimes a distinct disadvantage, as it may give rise to a troublesome oozing of blood which is difficult to control. A tracheotomy tube which is neither so large as to cause erosion of the trachea, nor so small as to render the expulsion of secretions difficult (a number 6 is usually the most satisfactory for adults) and which is passed through a sheet of rubber dam (in order to protect the wound from the secretions), is introduced into the trachea. A tracheal dilator facilitates the introduction of the tube. The skin sutures are now tied, and small gauze dressings are placed over the wound. The strings, which have been previously attached to the tracheotomy tube, are tied snugly, but not tightly, about the neck, and the rubber dam secured with adhesive. Before leaving the table a rubber catheter attached to a suction machine is run into the trachea, and secretions and blood aspirated.

The operative procedure outlined above has the advantages of being applicable to practically all cases requiring tracheotomy for which there is time to do a fairly deliberate operation, of opening up a minimum of space in the deeper planes for infection, and of producing very little bleeding; in a number of cases in which this method was used, no ligatures were necessary. The horizontal wound closes much more readily than a vertical one, healing usually occurring by primary union.

The local anatomical conditions may call for some variations in technique. The trachea may be pushed to one side by masses in the neck or pulled to one side by scar formation. (In these cases, an x-ray film is of great value in locating the position of the trachea.) An unusually high position of the innominate vessels calls for a higher location of the tracheotomy incision.

The after care of the patient is very important in order to prevent pulmonary complications. A special nurse or trained attendant should be present constantly for the first few days. The inner tube should be removed, cleansed thoroughly, sterilized, and replaced every two hours, at first, or oftener if necessary, for secretions are expelled more easily over the smooth surface of a clean tube than over a sticky coating of partially dried secretions adhering to the tube. As time goes on such frequent changing of the tube

is no longer necessary. The outer tube should not be changed, ordinarily, before five to seven days; it is then changed daily. In some cases, fibrinous or hemorrhagic plugs, too large to pass through the tube may obstruct it. In that case the patient is told to cough, and at the moment the plug strikes the tube, both inner and outer tubes are withdrawn together, when it will be found that the plug follows the tube. In the cases in which there is a tendency to the formation of these plugs, the instillation of an ordinary medicine dropper of mineral oil occasionally sometimes helps to prevent their formation, and makes the expulsion more easily accomplished. Frequent and prolonged use of this agent is not advised, for it is not absorbed by tissues and may accumulate in the lungs. The author has seen one such case at autopsy. A sterile catheter connected to a suction machine should be ready in the patient's room at all times for instant use when his breathing indicates that secretions are accumulating. The attendant is instructed to wipe away secretions during cough, before inspiration takes place, thus preventing the reaspiration of the expelled secretions. At first the head and shoulders are elevated, unless the patient is in shock, in order to lessen the danger of hemorrhage and to aid the expulsion of secretions. Morphine and other opium derivatives are to be avoided, for if the cough reflex is inhibited the secretions accumulate and pneumonia, lung abscess, or atelectasis may occur.

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DISCUSSION

Dr. John Delph, Chicago: I do not think I can add a great deal. I think Dr. Russell has covered the field of tracheotomy pretty thoroughly and I know he has had considerable experience. I do feel that two or three points should be emphasized. As he said, you should do a tracheotomy with deliberation and care, and have ample time in which to do it. A hurried operation is more likely to result in disaster than anything else. If a patient is dyspneic, has retraction of supra-clavicular space and has a pinched or anxious expression, I think then is the time to do it. I remember the first tracheotomy I ever did, and I believe I was more nervous then than I ever have been since, because I think dyspnea is one of the most alarming symptoms you can encounter. I am sure there is nothing will make a man more nervous than trying to do a tracheotomy on a patient who is about ready to pass out. Do not wait for cyanosis. Patients who need it do not get cyanotic until they are in extremis, and if you wait too long certainly you are going to lose some patients. That seems to me to be the foundation of success in good tracheotomy. I think post-operative care is just as important. Unless one has a nurse skilled in this work, accustomed to knowing what the patient's cough means, especially when the tube gets stopped up—she is going to be frightened and is not going to be much help. I think careful nursing is of as much importance as anything else. Also, I believe a patient should be propped up a little bit to prevent hypostatic pneumonia. No opiates should be given. He has spoken of high and low tracheotomy, but I do not believe that he thinks going through the cricothyroid membrane should ever be done except in extreme emergency; then I think the tube should be lowered in a day or two and placed in the proper position in the trachea because otherwise there is going to be trouble in decanulating. The technic is accepted by everybody except as to the transverse incision. That is the old incision for doing tracheotomy. Jackson's technic is a midline incision. He does not use any stitch as Dr. Russell does, and I am sure the scar is not offensive. Dr. Russell's technic is perhaps better so far as cosmetic results are concerned.

Dr. Stuart Broadwell, Springfield: I would like to ask Dr. Russell what he has found to be the percentage of incidence of bronchopneumonia in these patients.

Dr. Walter Stevenson, Quincy: Dr. Russell spoke of doing a tracheotomy deliberately and with care. This can only be done when one has plenty of time. My own experience has been that all of these cases are emergencies and require speed. As a result details of technic, etc., are thrown to the wind. Such emergencies may be avoided by the simple expedient of introducing a bronchoscope after which one may work with more deliberation and precision. Furthermore, the trachea is easier to find because of the contained rigid tube.

Dr. T. C. Galloway, Evanston: The bronchoscope may be a life-saver and allow a deliberate tracheotomy. Cyanosis is a sign of imminent heart failure, and as Dr. Russell said, one should not wait for that. It is often a good idea to use oxygen to tide over the patient.

Dr. M. H. Cottle, Chicago: I should like to say a

word about tracheotomy in children. In very young infants between the age of 2 months and 18 months, the question of doing a tracheotomy, even though it seems imperative, is sometimes fraught with more danger than in not doing it, even though there is danger of obstruction. Oxygen is of great help in tiding over the danger period; it occasionally is a great advantage to temporize with intubation.

Dr. Roland D. Russell, Chicago (closing): I agree with Dr. Delph that tracheotomy should not be too hurried, and even though the patient is dyspneic and somewhat cyanotic you can take a little time with it, if he has not been loaded with opium before you see him. There is less chance of damage if you take a little time and run the risk of stopping breathing. You can immediately go in in such cases, and then use artificial respiration. I did not mean to advocate opening the cricothyroid membrane. I do not believe there should be anything but low tracheotomy. Some men do a high tracheotomy when they are going to do a laryngectomy later. On three occasions I have found considerable subglottic extension to the upper tracheal region. I think the transverse incision is much superior to the vertical one because it heals very readily. I do not believe in using a lot of packing and leaving the incision open, because of the infection which may occur. These cases rarely become infected, if closed, and always become infected if you leave them open, but if you close and protect your wound you will have very little danger of infection.

Regarding the incidence of pneumonia I have not seen pneumonia afterward except in some cases where I suspected it existed prior to performing the tracheotomy. The bronchoscope, as has been said, is a life-saver in many cases. It has, however, one disadvantage, that is, the disadvantage of putting an instrument through an already stenosed larynx.

THE PRESENT STATUS OF THE SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM

Lantern-Slide Demonstration

GEZA DE TAKATS, M. D., M. S., F. A. C. S.
CHICAGO

The difficulties of evaluating the effect of sympathectomies on various pathologic conditions arise from many sources. The principal of these is the incomplete understanding of the effect of sympathectomy on healthy and diseased organs. Equally disturbing is the fact that many poorly understood groups of diseases have been subjected to sympathectomy with the hope of combining two mysterious unknowns to obtain a happy result. Between the uncritical enthusiasts and the hypercritical nihilists this interesting new field of surgical progress may suffer a long-lasting setback. In the present outline, it is my aim to group the various diseases for which sympathectomy has been advocated into three groups: group 1, in which sympathetic surgery has been of definitely established value; group 2, in which the value is on trial, and group 3, in which no definite results have been obtained.

The surgical anatomy of the sympathetic nervous system requires careful study. The surgical approach to many of these hidden chains and ganglia is not easy. It requires broad surgical training as dissection may become necessary in the deep structures of the neck, in the posterior mediastinum, in the retroperitoneal structures, in the depth of the pelvis or at the iliac bifurcation. It is essential that the surgeon study the surgical approach on the cadaver. Not only is the clean-cut removal of the sympathetic chain and ganglia important, but an incomplete removal may be one of the causes for failure.

There has been very little said about the structural and functional changes following sympathetic denervation. Our present knowledge on this subject, some of which is our own observation, is summarized in Table 1.

The proper selection of patients for sympathectomy is important. Generally speaking, the effect of sympathectomy can be predicted by blocking the sympathetic ganglia that are to be removed, with novocain. The methods that are used can be found in text-books on local anesthesia. A number of other tests have been described, most of them pertaining to the ability of the vascular bed to dilate when a release of the vasoconstrictors has been accomplished. It must always be remembered that this effect only imitates the momentary result of sympathetic transsection and that vascular tonus, at least in part, will be later regained.

In Table 2, I have summarized groups of cases for which sympathectomy has been advocated. It will be noted that in the second group are patients who have not been amenable to relief by any type of medication or surgery. Therefore, it is justifiable to study the effect of sympathectomy on these patients and in all probability some members of this group will advance in due time to the first group. In the third group, it will be noticed that arthritis, Buerger's disease,

Presented before the Section on Surgery at the Annual Meeting of the Illinois State Medical Society, Rockford, Illinois, May 22, 1935. From the Department of Surgery, University of Illinois.

TABLE 1

STRUCTURAL AND FUNCTIONAL CHANGES FOLLOWING SYMPATHETIC DENERVATION

Organ	Structure	Function
Arteries	Atrophy of media Loss of elastic tissue Slight fibrosis	No permanent loss of tonus Increased blood flow Abolition of central or reflex vasoconstriction Increased permeability
Muscle	Atrophy (not consistent in striated muscle) Decreased glycogen content	Increased fatigability (Decreased muscle tonus?)
Liver	Glycogen-storage	Glycogen-fixation
Spleen	Diminution of follicles Fibrosis	Loss of contractility Increased red-cell count
Adrenal	Lipoid storage of cortex Atrophy of medulla	No emergency secretion of adrenalin
Urinary bladder	No data	Decrease in residual urine Increase in capacity Desensitization
Uterus	No data	Abolition of painful menstruation (primary dysmenorrhea)
Gastro Intestinal Tract	No data	Increased peristalsis Decreased sphincteric activity Abolition of visceral pain ent in striated

TABLE 2

GROUPS OF CASES SUBJECTED TO SYMPATHECTOMY

Group 1. Value established.

Central or reflex vessel spasms.
- Raynaud's disease.
- Endarteritis with vessel spasm.
- Poliomyelitis with vessel spasm.
- Causalgia.
- Amputation—neuroma.
- Angina pectoris (alcohol injection preferable).

Congenital megacolon, intractable atonic constipation.

Cord bladder, intractable bladder pain.

Dysmenorrhea, intractable uterine pain.

Group 2. Value on trial.

Vascular lesions of the eye.
- Retinitis pigmentosa.
- Toxic neuroretinitis.

Progressive nephritis.

Essential juvenile hypertension.

Juvenile, non-ancreatic diabetes.

Intractable visceral pain.

Group 3. Value unproved.

Arthritis	Migraine
Buerger's disease	Glauconia
Scleroderma	Epilepsy
Spastic muscle-paralysis	Tropic ulcers

scleroderma and trophic ulcers have been excluded as cases where sympathectomy is indicated. This is at variance with the observations of others and only represents my own experience. With a better understanding of the fundamental pathology of these diseases it is becoming increasingly obvious that sympathectomy either will not be used at all in this third group, or will be used only in the very exceptional case.

A complete bibliography with illustrations and a more detailed discussion of the surgical anatomy, of the surgical physiology, of the proper selection of patients, and of the indications and results obtained, will appear in the author's reprints. The two tables published here are submitted as an outline of the present status of this interesting field and as an indication of where future progress lies.

122 South Michigan Avenue.

DISCUSSION

Dr. S. E. Munson, Springfield: Most of the interesting and even satisfactory results that have been accomplished by sympathetic ganglionectomy and trunk resection have been done in the past ten years. These have been for the relief of peripheral vascular diseases, such as Raynaud's, thrombo-angiitis obliterans or Buerger's disease, with vasomotor spasm of nonoccluded arteries and scleroderma following Raynaud's disease. More recently, this operative procedure has been applied to arthritis, hypertension, Hirschsprung's disease or megalocolon, angina pectoris and other visceral pain.

Arthritis. The operation is found more successful

among patients with cold, clammy and sweaty hands and feet. Adson of the Mayo Clinic has done much work along this line.

Angina Pectoris. In the relief of angina pectoris I believe that every therapeutic as well as physical and mental measure of control should be exhausted before we resort to surgical procedure. The condition of hypertension which usually accompanies anginal pains in the ultimate is as intractable to treatment at present as it has been in the past. In a given case when the patient has had all the above treatment, which, of course, means rest in bed for a reasonable period of time, then sympathectomy should be tried, or the more recently advocated operation of thyroidectomy.

Recently James Lyon and Horgan of Washington, D. C. report even better results in dissection of the sympathetic nerve supply of the thyroids than their removal. Also, in congestive heart failure, as stated before, most of the cases of angina pectoris and hypertension are relieved by medicinal measures in the hands of the internist, but when this fails a new field is open for surgery. We as internists have failed to conquer these diseases under the conditions I have mentioned, and we are willing to accept surgical procedures, as sympathectomy and thyroidectomy. We must bear in mind that medicine and surgery can only give sympathetic relief as they do not restore the basic pathologic changes.

Chemists and physiologists are not asleep and now are more active than ever before in searching for the causes of this condition. The hope for the future lies in the determination of the various causes of these diseases. And after the causes are found the prophylactic treatment may be indicated, which will be the greatest advance in medicine and surgery.

Dr. Maurice B. Visscher, Chicago: I would like to add a few words from the standpoint of the physiologist. These are physiological problems that are being investigated, but they cannot profitably be investigated by animal experimentation. They require suitable human material for their study. This calls for the cooperation of persons in medicine and surgery who are in a position to make observations on cases in which it is justifiable to carry on as drastic procedures as some of these are. Some of this work is very important from the point of view of understanding the mechanism of the autonomic nervous system, and of many other systems in the body, particularly the circulatory.

I want to make only one additional point beyond those Dr. de Takats made concerning clinical study, that is the danger of over-enthusiastic interpretation of results. I remember quite clearly that a colleague of mine in another medical school before I came to Illinois, in the department of orthopedics, was very much interested in the work of Hunter and Royle and was making an extensive investigation on spastic paralysis, going to the trouble of taking a moving picture of progress of the patients. He was using mechanotherapy besides performing sympathectomy, and he was not taking a control series of entirely comparable cases which had not been subjected to sympathectomy and putting them through the same mechanical therapy. He, therefore, could not check the effect of the operative procedure alone. He came to what Dr. de Takats would agree was an entirely erroneous deduction, namely, that those patients improved because of the sympathectomy. The patient undoubtedly improved, but it was very likely not due in any way to the sympathectomy.

I should like to refer to the physiological anatomy of the autonomic nervous system and its nomenclature. A point that has not been generally appreciated is that when you are dealing with sympathetic trunks you do not have exclusively sympathetic nerves but you have visceral afferent or sensory nerves as well. Only the efferent nerves are, strictly speaking, sympathetics, but in any operation severing these the afferents are sectioned as well. A great many of the beneficial effects are due not to severing the efferent nerves but to severing the afferent nerves that run in the same trunk with them.

Particularly with regard to such cases as the relief of hypertension in nephritics, of which Dr. de Takats spoke, it is not at all impossible for a physiological point of view that the lowering of blood pressure is due to the cutting of the sensory afferent nerves rather than the efferent nerves. Cutting the efferent nerves to such a small visceral area as the kidney is of no significance from the standpoint of general blood pressure. Cutting the afferent nerves has a very profound effect upon general blood pressure. It would seem that surgeons and internists who are able to make observations on the role of the sympathetics in disease should bear this point carefully in mind.

Dr. Geza De Takats, Chicago (closing): There is just one point I would like to emphasize, that is the mental attitude of these patients. I have been so impressed with this aspect of the problem that I have every patient examined by a psychiatrist. In some cases it has been our experience that patients with Raynaud's disease are amenable to psychotherapy. A few years ago Dr. Allen Whipple of New York in a paper before the Institute of Medicine of Chicago on the surgery of duodenal ulcer, said that every one of his patients who had been subjected to surgery for duodenal ulcer had been very carefully analyzed from a mental standpoint, and not only treated but followed up after operation. The same holds true in vasomotor conditions.

I am very grateful to Dr. Visscher for his discussion. I feel one cannot be cautious enough in interpreting the results. In some of these sympathectomies we do a unilateral operation and have the other side as a control, which is equivalent to an experiment in human physiology. There are many other things which act as factors in the improvement so that we cannot be too careful in evaluating our results.

What he said about the afferent nerves cannot be overemphasized. I feel that much future work will depend on the recognition of these afferent nerves and the vasosensitive zones which regulate blood pressure. I could not dwell on this in the paper. We do wish

to continue observations on these conditions because we feel we are dealing with such diseases that have not been relieved by other measures.

I have made no observation on megalocolon. There have been at least 25 cases reported in the literature with more or less successful results. The result depends on the stage in which they are brought to surgery.

ACUTE METASTATIC SPINAL EPIDURAL ABSCESS

Two Cases

DEAN STANLEY, M. D.
DECATUR

The presentation of this paper was prompted by the presence at one time of two of these rare cases in St. Mary's Hospital at Decatur.

Acute metastatic spinal epidural abscess is an unusual but definite clinical entity, the early recognition of which is most important. Left untreated, the disease must surely be fatal, but properly treated by early laminectomy and drainage of the abscess, a cure usually may be expected.

Anatomy. Some knowledge of the anatomy of the spinal epidural space is necessary to an understanding of the disease, and since very little description of the space is found in text-books on surgical anatomy, Dandy has done a real service by emphasizing certain points of great importance.

The space is only potential over parts of the cord, but reaches a depth of ½-¾ cm. between the 4th and 8th thoracic vertebrae, and is again deeper in the lower lumbar and sacral regions. The space exists only on the posterior aspect of the dura, the dura being elsewhere closely in contact with the bones and ligaments of the vertebrae. The epidural space contains fat and loose areolar tissue with many veins. It is, therefore, easily understood that metastatic abscesses are usually in the thoracic region, and almost invariably dorsal or posterior to the cord. A few abscesses have been reported as involving almost the entire spinal epidural space and one such case, that of Smithwick and Mixter, was successfully treated by two laminectomies, the upper and lower wounds being connected by Dakin's tubes for irrigation.

Diagnosis. Metastatic spinal epidural abscess is to be suspected in a patient with or without an antecedent pyogenic focus or trauma, showing intense back pain and rigidity, fever, leucocytosis and girdle pains. At the time the patient is first seen, there may or may not already be paraplegia, spincter disturbances and sensory loss. Some aspect of the case usually leads one to do lumbar puncture, and the presence of spinal block makes the diagnosis of spinal epidural abscess almost the only one possible. Both of our cases had the typical picture of yellow fluid under very low pressure, which promptly clotted spontaneously.

Because of the unusual case in which the abscess extends down to the usual site of lumbar puncture, that procedure probably should be performed slowly and with frequent suction to prevent contamination of the subarachnoid space by the needle's passing through pus in the epidural space.

Treatment. Once the diagnosis is made the proper treatment clearly is prompt performance of laminectomy and adequate drainage of the abscess, leaving the wound wide open. Since the abscess is usually in the thoracic region, and the location of girdle pain and often the sensory loss point to this region, this is the site of choice. Enough laminae must be removed adequately to expose and drain the abscess. This is shown well by our second case, which had to be more widely exposed before recovery began.

The cord symptoms are interesting in that they seem to be the result of more than just pressure on the cord, and do not clear up promptly with drainage of the abscess and removal of that pressure. It has been suggested that products of infection pass inward along the spinal nerve roots to involve the substance of the cord itself. In practically all those cases in which cord symptoms, i. e., motor, sensory, and sphincter disturbance, have occurred, recovery from these symptoms after drainage of the abscess has been disappointingly slow, although usually complete.

Case 1. The first patient, R. S., a girl aged six, became ill, July 7, 1934, with fever, headache, backache, abdominal pain and obstinate constipation. She was first seen by Dr. E. P. McLean, July 9, at which time she had the above symptoms with a temperature of 101.6 F. and an infected throat. Her backache was so intense that she could not lie on her back. On July 11 her temperature was 102.6 F., and her backache and abdominal pain were still intense. She was especially tender over the lower thoracic vertebrae. The redness

Read before Section on Medicine, Illinois State Medical Society, Rockford, Ill., May 22, 1935.

of her throat had cleared up. On July 12 her temperature was 103.0 F., and she was sent to St. Mary's Hospital. X-rays of her spine and lungs were negative. Her blood count showed a hemoglobin of 60%, 3,000,000 R.B.C., and 22,440 leucocytes, of which 95% were polymorphonuclears. Urinalysis showed 3 plus albumin, a few pus and red blood cells, and many brown granular casts.

Because of a stiff neck and positive Kernig, Dr. McLean did a lumbar puncture, July 13, obtaining clear yellow fluid under very low pressure. This fluid clotted spontaneously. It contained 10-12 cells per C.M.M. and cultures were negative.

Dr. Scott Wilkinson of Decatur was called in consultation and noted the extremely close resemblance of the case to that reported by Slaughter, Fremont-Smith and Munro in the May 4, 1934, issue of the J. A. M. A., under the title of metastatic spinal epidural abscess. Dr. Wilkinson made a diagnosis of spinal epidural abcess and suggested laminectomy. This was performed that night by Dr. McLean, assisted by Dr. H. J. Burstein. The epidural space was exposed from the 7th to the 12th thoracic vertebrae, and free pus was encountered at the 7th, 8th, 9th and 10th. The wound was left wide open. The pus grew staphylococci on culture. The child quickly improved and left the hospital in good condition, August 3, 1934, and has been well since. At no time was there evidence of injury to the spinal cord itself. There was no evident primary pyogenic focus. There was a questionable history of trauma to the back a short time previous to the illness, the child having fallen over backward in a rocking chair.

Case 2. Since I had been intensely interested in Case 1, and had read such literature on the subject as was available to me, it was like meeting an old friend when I was called in consultation to see this case July 19, 1934, with Dr. C. M. Wood of Maroa. The patient was a youth aged 19, who had been suffering for the past 4 or 5 days with intense backache and rigidity, the pain radiating into the abdomen. On the day on which I saw him, his legs had become too weak to support him and he had been unable spontaneously to empty his bladder. His pain was so intense that the slightest movement was agony, and he sat rigidly erect in a chair. His temperature was only 99.8 F., but he was perspiring profusely. The extremities were paretic, although movement was still possible. Sensation seemed but little changed. (The right leg was somewhat weaker and smaller than the left, due to poliomyetitis in childhood.) There was no great change in reflexes at this time.

With a provisional diagnosis of spinal epidural abscess he was admitted to the hospital the next day. Lumbar puncture produced two or three c.c. of clear yellow fluid, under very slight pressure, which coagulated spontaneously. Temperature at this time was 102.2 F. His white count was 34,400 of which 95% were polymorphonuclear neutrophiles.

Laminectomy was performed that evening (July 20) by Drs. W. Stuart Wood and W. C. Wood. The epidural space was opened at the 5th, 6th and 7th dorsal vertebrae and considerable pus under pressure was evacuated. On culture of this pus staphylococci were grown. The wound was packed with vaseline gauze and left wide open.

The patient's pain continued, his paralysis if anything increased, both bladder and rectal sphincters were out, his temperature remained up and, most important, lumbar puncture done July 25 still showed Froin's syndrome to be present. On July 26, he was, therefore, operated on again and the epidural space exposed at the 3rd, 4th, and 8th thoracic vertebrae. A considerable quantity of pus was evacuated at the 3rd and 4th thoracic level, and the boy began to clear up at once.

Convalescence was interrupted by a severe pyelocystitis and by a deep sacral pressure sore. Improvement in the cord symptoms was progressive and at present he walks unassisted and has full control of bladder and rectum. As in the first case, no primary pyogenic focus was discovered, unless a few facial acne pustules could be so considered, and there was only a questionable history of trauma. He stated that he has been showing some tumbling tricks and had fallen on the hard ground, striking his back. This, however, antedated his illness by ten days or more.

SUMMARY

1. Two cases of metastatic spinal epidural abscess are described.

2. The importance of knowledge of the anatomy of the spinal epidural space in the diagnosis and treatment of such abscesses is touched upon.

3. The importance of early diagnosis and proper treatment by early laminectomy and adequate drainage of the spinal epidural space is stressed.

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DISCUSSION

Dr. Don C. Sutton, Chicago: I want to express my obligation to Dr. Stanley in seeing this paper about six weeks ago. Soon after reading it I made a diagnosis of epidural abscess of the cervical region. There was a disagreement on consultation with the neurologic surgeon and urologist. During the month the abscess travelled downward and also involved the lumbar re-

gion. I feel that Dr. Stanley's presentation has been extremely interesting and valuable.

Dr. Frank G. Norbury, Jacksonville: I am very happy to have heard this presentation. I think the neurologic study and the thinking out of the situation are the things that made the diagnosis possible. I have not had any such cases since military service when I saw two. There they were of traumatic origin.

Dr. W. Stuart Wood, Decatur: I would like to call attention to the importance of spinal puncture in these cases. Having had these two cases recently we were up on our toes regarding spinal epidural abscess, so a couple of months ago when a young boy was brought in having been sick for two weeks with severe pain in the back, paralysis of the lower extremities with girdle symptoms and loss of sphincter control, we were looking for epidural abscess. He had an obvious subcutaneous abscess over the mid-dorsal region which meant that if we did a laminectomy we would have to do it through the infected area. However, on lumbar puncture we got clear fluid which was under markedly decreased pressure but which did not clot. We drained the superficial abscess. We hoped that would clear up the symptoms. On opening the abscess we found it to be rather horseshoe shaped, extending across the spine at about the third dorsal vertebra and down on either side of the spine caudally; the tip of the second dorsal vertebra was eroded and the periosteum was gone. The tip of the spine was roughened but no other bone was exposed. Considering this osteomyelitis to be probably secondary, we did not do any further bone work. We instituted wide open drainage. In a few days the boy developed a lung abscess which later cleared up, and he is now free of his paresis and the sphincter symptoms. I think doing the spinal puncture and getting a negative test prevented us from going in and making him a good deal worse by doing a laminectomy on the symptoms alone.

Dr. Dean Stanley, Decatur, (closing): I wrote to Dr. Sachs about our cases, and he stated that he has done 300 laminectomies and has had no pyogenic abscesses. We were fortunate enough to have two in the hospital in one week, but I may never have another one.

WHAT SHALL WE DO WITH THE UNHEALTHY CERVIX?

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For years it has been recognized that cancer of the uterus is one of the most frequently encountered malignant tumors, and that cancer of the cervix is far more common than cancer of the fundus. Consequently *cancer of the cervix uteri* occupies a prominent and unenviable position among the diseases of women. Since the actual cause of cervical carcinoma is unknown its inception cannot be prevented, but there is a great opportunity to materially increase the number of cures from cancer, if patients could be obtained for treatment when the growth is small, while it is localized in the cervix and is amenable to complete eradication by the therapeutic methods now at our disposal.

Read before the Surgical Section of the Illinois State Medical Society at Rockford, May 22, 1935.

Laymen of our generation are vitally interested in *preventive* medicine and they are rapidly being educated to the value of periodic physical examinations. Such regular visits to the doctor will lead to the recognition of many diseases while they are still in an incipient stage. Numerous gynecologists have urged semi-annual pelvic examinations, especially for women who have borne children; by this expedient they hope to discover early cancers of the cervix before symptoms occur, and while the growth is in such an early stage that it can almost certainly be cured.

However there are several obstacles to be overcome. In the first place, one has to urge physicians to make vaginal examinations and to inspect the cervix, as an integral part of the complete physical examination of every woman. If these genital examinations are made routinely, it is inevitable that many unhealthy cervices will be found; some will be cancers, others, benign. Some will need treatment, others can be kept under observation.

Some writers would have us believe that cancer of the cervix can be *prevented* by treating *every* unhealthy cervix, i.e. by eradicating diseased areas, either through topical applications of various antiseptics, by cauterization with the electric cautery, or by surgical excision. Repair of the badly diseased cervix probably is valuable prophylaxis against cervical cancer but indiscriminate cervical operations are not recommended and should be discouraged.

In recent years the gynecological literature has contained many reports on the value of the colposcope and the Schiller test in the early recognition of cervical cancer. The colposcope was designed for minute inspection of the cervix; it supplies ideal illumination and magnifies the areas under consideration at least 8 or 10 diameters. Gynecologists skilled in its use are able to detect tiny areas of leukoplakia and cancers which are not visible to the naked eye; however, the colpo-

scope is an expensive instrument and few men are sufficiently experienced and skilled in its use to allow them to intelligently interpret the pathology which they are able to see. The Schiller test consists of an application of Gram's solution to the vaginal portion of the cervix. Due to the glycogen content of surface epithelial cells, the *pars vaginalis* of the cervix stains brown when treated with this iodine solution and *early cancers fail to take the stain.* However, erosions stain faintly and are pink; ulcers and eversions do not stain at all; some areas of chronic cervicitis stain only faintly; trauma may destroy the surface glycogen-bearing cells so that staining does not occur; granulations are not stained and in prolapsus staining is prevented by hyperkeratosis. Consequently the Schiller test merely aids in the detection of abnormal areas on the cervix; it does not differentiate benign from malignant lesions.

Possibly I am ultraconservative but I can not be enthusiastic about new procedures which have not yet proven their worth. In all fairness, however, it must be said that both the Schiller test and the colposcope are extremely valuable; if for no other reason, simply because they encourage careful study of the uterine cervix.

I wish to direct attention to the gross appearance and physical characteristics of several common lesions of the cervix, and to comment on the symptoms which they produce and the indications for their treatment.

Nulliparous erosion: Erosions are often confused with cancer.

An erosion of the cervix is usually symmetrical. It is centered about the external os and involves both lips almost to the same degree. It is not an ulcer, nor is it a depressed lesion with loss of substance. It is composed of granulations and consequently is pink or red in color. It is only slightly raised above the level of the external cervix and frequently is not suspected on palpation although it is quite evident when the cervix is inspected. Its margins are smooth and are sharply demarcated. It may ooze modestly when traumatized with cotton, especially if it contains polypoid granulations. It is often an unsuspected finding in a patient without pelvic complaints, although it also may be the source of an annoying leucorrhal discharge.

Erosions are complications of endocervicitis and probably arise from the digestive action of cervical discharges on the epithelium which covers the external cervix. Granulation tissue replaces the destroyed epithelium.

Most nulliparous erosions need no treatment. Those which are attended by annoying leucorrhea may be eradicated by endocervical cautery plus punctuate local destruction of the eroded surfaces. A few may be so extensive that amputation is advisable.

In contrast with cancer; erosions are firm, not friable. They give rise to slight spotting or streaking of blood when harshly traumatized; there is no free bleeding. It is thought that cancer of the cervix does not develop from erosions but may arise at their margins, i.e. at the junction of granulation tissue with the vaginal epithelium.

If one is in doubt and fears that an eroded or everted cervix also contains cancer, I advise amputation in preference to removal of a fragment for biopsy. Amputation is preferable because it removes the pathology, its end-result is a smooth healthy cervix and *all* of the suspected lesion is then available for careful microscopic study.

Lacerations with eversion: The cervix may be split so extensively that it is obviously divided into an anterior and a posterior lip; the endocervix is exposed and its mucosa frequently rolls out, pours out or everts on the torn surfaces as reddened granulation tissue, called an eversion. With the exposure of the endocervix, infection is inevitable and endocervicitis results. Such lacerations with eversion frequently give rise to considerable leucorrheal discharge. There may be slight spotting bleeding, not hemorrhages.

The laceration is easily palpated but the extent of the inflammatory process is revealed best by inspection.

Whether or not such a cervix should be treated, depends entirely on the symptoms which it produces. For less extensive lesions, cautery treatments may suffice, however, if the lesion is marked it is useless to try to cure it with any treatment short of surgical excision. Whether an operation should be performed, or the cervix kept under observation, may depend upon the patient's wishes about future pregnancies; a cervix which is already lacerated will undoubtedly be appreciably shortened by corrective surgical procedures.

Although these unhealthy lacerated, eroded and everted cervices are a menace and must be

watched carefully, there is little reason to believe that the cervix is often the focus of infection responsible for systemic disease.

Cervical Polypi: Cervical polypi probably are not true tumors, they are merely finger-like prolongations of granulation tissue from the endocervix. In other words, the presence of a cervical polyp means that there is also an inflammation of the cervical canal. Cervical polypi frequently give rise to a slightly bloody vaginal discharge, but are never responsible for free bleeding or hemorrhages.

Polypi are elusive on palpation. Frequently they are so small that they cannot be felt; oftentimes they are so soft that they make no impression on the examining finger. On inspection they are easily recognized; they protrude from the external os, arise in the cervical canal, are red or gray in color and are usually multiple. They vary in size from minute granules to prolongations 3 or 4 inches in length, and a half-inch in diameter. They may be confused with polypoid masses of endocervical or uterine cancer, presenting at the external os or protruding into the vagina.

Due to the possibility of such confusion and because polyps are responsible for some symptoms, we recommend their routine removal, but not as an office procedure. The patient is hospitalized and under anesthesia the polyps are removed, the cervical canal is thoroughly dilated, the uterine cavity is curetted and the associated endocervicitis is treated, usually by cauterization. The removed tissues, both polyps and curettings, are sectioned and studied histologically; an occasional cancer is found.

The type of treatment just recommended is not conducive to a recurrence of polyps; yet it has been taught for years that recurrence is characteristic. Of course they will recur, if the underlying pathology responsible for their development, is not corrected.

Polypoid Fibroids: A submucous uterine fibroid with an attenuated pedicle which permits it to present in the cervical canal or protrude into the vagina, is called a polypoid fibroid. It is usually associated with *gushing menstrual bleeding* and intermenstrual bloody discharge. Such tumors are infected; because of their presence, the cervix is patulous and the uterine cavity also is invariably infected.

Polypoid fibroids are firm, rounded tumors; sometimes a pedicle can be felt extending into the uterus. The cervix is usually softened, it may be effaced and almost imperceptible. These tumors vary in size from a small button to those which weigh several pounds. Sometimes necrotic polypoid fibroids are difficult to differentiate from a large cauliflower carcinoma of the cervix. Fibroids which become polypoid after the menopause, are almost invariably sarcomatous.

Polypoid fibroids should be removed vaginally; if there are other fibroids in the uterus which make hysterectomy advisable, the abdominal operation should be postponed for a month; this permits the infection of the uterus to subside, or disappear. Waiting for a month, after a vaginal myomectomy, before entering the abdomen will greatly reduce the incidence of postoperative infections.

Cancer of the Cervix: If one is careful in eliciting histories, is accurate in making vaginal examinations and inspects the cervix under ideal illumination, he will diagnose correctly 98% of the cancers of the cervix which come into his office; only a few will require biopsy, although a diagnosis of cancer should always be confirmed by microscopic study.

Vaginal bleeding, after the "change of life," denotes cancer until some other cause is definitely proven. Bleeding between the menstrual periods also, may be due to cancer and its cause must be accurately determined. The earliest symptom, noted by most women with cancer of the cervix, is *bleeding after sexual intercourse.* Foul vaginal discharge appears in the later stages and pain occurs only when the cancer is too far advanced to be cured.

Most cancers involve more than half of the cervix when they first give rise to symptoms. They are *friable* tumorous new-growths which *bleed freely on manipulation,* which crumble easily when palpated with a curette and which rarely cause an enlargement of the cervix to more than twice its normal size. In later stages, the friable tissue may be replaced by a craterous ulcer with indurated margins. In earlier stages *friability,* not stony hardness, *is the characteristic finding on palpation.*

Cervical Cautery: Endocervical cauterization should extend from the internal os to the external os, in the form of three to five narrow linear longitudinal cuts or burns. Their purpose is to establish free drainage, open infected crypts

and overcome obstructions; *one must avoid complete destruction of the endocervical mucosa for fear of producing cervical strictures.*

The improvement after cervical cauterization, does not begin for a month; during the first three weeks the leucorrheal discharge is increased and there may be bleeding, even hemorrhages; but the improvement continues over a period of many months and consequently the cervex need not be recauterized until at least a year has elapsed.

Patients who have been subjected to cervical cauterization must be examined regularly and the cervical canal tested, to be sure that it remains adequately patent.

Experience has proven to us that retrodisplacement of the uterus predisposes to the development of pelvic infections after cautery treatments; they are of sufficient frequency to make retroflexion of the uterus a contraindication to the use of the cervical cautery.

Modified Schroeder Amputation of the Cervix: When surgical correction of a lacerated, everted or eroded cervix is indicated, we prefer a modified Schroeder amputation. Such an operation removes the diseased cervical tissues and carefully maintains an adequate cervical canal. It is easily performed; it is a rational procedure and has proven ideal in our experience. It is rarely followed by cervical strictures, although obstructive lesions are common after most cervix operations. Furthermore, the modified Schroeder amputation is compatible with future child-bearing.

Radium Treatment: Only the earliest, Stage 1, cancers of the cervix are amenable to surgical excision. Few gynecologists see enough of these lesions to become proficient in the technique of the radical operation for cancer of the cervix. Consequently radium treatment has become the therapy of choice, and the mortality and morbidity following radium treatment is much lower than after operation.

A suitable type of therapy includes the insertion of a palisade of radium needles around the cervix and into the parametria outside the apparent margins of the cancer, along with a chain tandem bolus of radium in the cervical canal and uterine cavity. With such technique, cancerous tissues are subjected to a cross-fire of radiation; in favorable cases, they can be completely and permanently destroyed.

CONCLUSIONS

1. The laity should be educated to the value of periodic physical examinations.

2. Physical examinations of women are not complete unless they include palpation of the genital organs and inspection of the cervix.

3. The ideal management of cervical polypi includes, besides their removal, dilatation of the cervix, curettage of the uterus and eradication of the associated endocervicitis.

4. Few erosions and lacerations with eversion require treatment; most of them can be kept under observation.

5. Erosions and eversions may be responsible for a leucorrheal discharge, never for vaginal hemorrhages.

6. Cancer of the external cervix is characterized by friable tissue which bleeds freely on manipulation.

7. Modified Schroeder amputation of an unhealthy cervix, suspected also of containing cancer, is preferable to removal of a fragment for biopsy.

8. Following all operative manipulations on the cervix, the patient must be instructed to report for examination regularly so that the patency of the canal can be maintained and cervical strictures prevented.

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THE SURGICAL TREATMENT OF GLAUCOMA

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The rationale in the treatment of a diseased process should indicate that one has become thoroughly familiar with its character or peculiarities. This has not been fulfilled for glaucoma. What we consider glaucoma, is not a definite etiological clinical entity, but a symptom-complex, of which increased tension is the most important and dangerous characteristic. That the increase in tension may vary considerably, is well illustrated by the many varieties encountered in the so-called secondary glaucoma, the treatment of which will be dealt with only superficially here. The primary glaucoma is basically also a secondary glaucoma, since its essential etiology is little, if at all, known.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 22, 1935.

It is true that one of the causative factors playing an important role in many primary glaucomas is a disturbance of blood vessel innervation, which sooner or later manifests itself by a permanent derangement of the vessel wall, resulting in irreparable damage. Therefore, when we consider these important changes occurring with increased age, which includes the ages in which glaucoma most frequently occurs, we must also consider that the lowering of the increased tension, in spite of its importance, does not always prevent the loss of function of the eye. The deterioration of the blood vessel apparatus of the eye will continue to cause further destruction of the tissue, resulting in more loss of function.

Conquering the increased tension as the important factor in the picture of glaucoma remains at present our greatest problem, as long as we are ignorant of its direct relationship with the glaucoma picture. We must realize that the reduction of the increased tension is purely symptomatic therapy, and cannot be spoken of as a cure for glaucoma. One must attempt to forestall loss of function of the eye as long as possible by this means of symptomatic treatment.

When we limit ourselves to cases of primary glaucoma, we must admit that surgery has no effect upon the etiology, and yet operation remains our strongest and most effective weapon to control the destructive influences of the disease and prevent further loss of function. In this sense only, can we speak of "curing" a glaucoma by true symptomatic operative therapy, and the limit of this symptomatic therapy is entirely dependent upon lowering the increased intraocular tension. The outcome is further limited by the fact, well known to every experienced clinician, that in spite of a permanent lowering of tension, the eye may continue to lose function. To explain this phenomenon, one must consider that even though the increased tension is controlled, the degenerative influence upon the innervation of the blood vessel system continues in spite of the surgical control of tension, resulting in nutritional and metabolic tissue change. However, such malignant cases are rare, and it should be our aim to regulate the tension wherever possible.

Although Hamburger is of the opinion that operative interference is rarely necessary, most other authorities during the past sixty years have come to the conclusion that operative interference is usually indicated. Some eighteen different forms of operation have been devised and advocated during this period. The literature reveals that operative interference results in regulating the tension in a majority of cases, especially when the diagnosis is made early.

Indications and Contra-indications for the various types of operation in Primary Glaucoma.

a. *Sclerotomy.* If one excludes hydrophthalmos, then anterior sclerotomy can only be recommended as a preparatory operation for further more complicated operative interference. There is no doubt that a posterior sclerotomy in many cases results in a gradual lowering of tension and a deepening of the anterior chamber, so that when an iridectomy or fistulizing operation is done shortly thereafter, much better results are obtained and the dangers of a sudden lowering of tension with its resultant serious disadvantages are practically nil. However, during the past few years many other methods of lowering the tension previous to surgical interference have come into vogue, so that the need of a preparatory sclerotomy should be performed in an area of the retina which will not affect the visual field, namely temporal and above.

b. *Classical Von Graefe Operation or Iridectomy.* When it was noted that following fistulizing operations there were visual field losses later on, accompanied by a relative high frequency of complications and most of all, the danger of late infection, many German ophthalmologists again became favorable towards iridectomy.

Hess favorably recommended the peripheral iridectomy as did Safar lately on account of its relative safety, but its effect is not permanent. Polev's statistics from the Munich clinic indicate that fistulizing operations had to be performed at a later date. Stock advocated total iridectomy in preference to peripheral, in view of the fact that a completely iridectomized eye reacted as well to miotics afterward, if they were found indicated, and did not result in a miosis of the pupil, thus obviating night blindness so frequently complained of when an intact pupil is present.

The majority of the ophthalmologists recognize few indications for the procedure. Practically all agree that it is the operation of choice in acute glaucoma, preceded if necessary, by sclerotomy or other methods to lower the tension

beforehand, if the tension is very high. Wilmer advocates it in cases of cataract, because here fistual operations tend to hasten the lens opacities, and the iridectomy prepares the way for lens extraction at a later date.

It is not indicated in cases of "chronic inflammatory glaucoma." The 50% favorable results reported in such cases are most probably due to cystic scars. It may be indicated in such cases where the tension can be regulated by miotics. If not, then a cyclodialysis or Elliot trephine operation is indicated.

Von Grosz, who had previously performed two thousand iridectomies as the operation of choice in the prodromal stage, now believes cyclodialysis to be the operation of choice. Kruckmann performs iridectomy in glaucoma simplex only when cataract is present, as the progress is hastened by fistulizing operations. He also believes it is not indicated when the visual field becomes contracted close to the point of fixation.

Stock is an enthusiastic supporter for iridectomy, and therefore, usually performs an Elliot Trephine, as iridectomy is best made use of here. Meller and others also believe that the good results following a trephine operation are due to the iridectomy.

(c) *Fistula Formation Methods* The sclerotoiridectomy of LaGrange has been greatly superseded by the Elliot trephine method, even in Germany, although still warmly recommended by V. Grosz, Morax, Ruskowsky and Wilmer. Even LaGrange advises limiting the use of same to eyes with a tension not more than forty mm. Hg. However, this limit can be greatly overcome by using the retrobulbar injection anesthesia of Fromaget preceding the operation, which may lower the tension as much as twenty mm. Hg. LaGrange does not advise his method in the acute glaucomatous stage, as the end results may be poor, and here advises iridectomy. If the anterior chamber is very shallow, he advises insertion of the knife from the outside instead of the usual keratome incision.

Elliot's trephine operation has continued to be the most widely discussed operation during the past few years. This is probably due to the increased statistical studies that have accumulated and become available for study; the increased length of observation; and the increased early recognition of the late dangers that may occur and the treatment of same.

The problem as to what is responsible for the reduction in tension is still undecided. Many believe the process is due to a partial atrophy of the ciliary body as in cyclodialysis, and may even be the cause of the rather marked hypotony, occasionally occurring after a trephine operation, which is an indication of a marked disturbance in the intraocular secretions. Stock and Meller are of the opinion that the success following an Elliot trephine operation is due to the iridectomy. On the other hand, Krückman believes it to be due to the formation of fistula in the scar. Others believe it to be due to the establishment of a newly formed collateral circulation at the limbus. This is most probably a false assumption as the new blood vessel formation in adherent leucomas and staphylomas does not lead to tension reduction.

There is a wide difference of opinion as to the actual indications for an Elliot trephine operation. Stock is highly in favor of this method in combination with a complete iridectomy. Elschnig believes it should be a weapon of last resort after all other methods have been unsuccessful. Most authors recommend it in chronic glaucoma. The Breslauer and Munich clinics recommend it as the operation of choice in chronic glaucoma simplex. Krückman's clinic in Berlin advocates it for chronic glaucoma simplex, but only occasionally for chronic inflammatory glaucoma. While most European authorities do not advocate it in acute glaucoma, the good results being 48% against 67% in chronic glaucoma simplex, Wilmer advocates its use in practically all varieties of glaucoma as the easiest and safest operation, even in the presence of markedly contracted fields, and when necessary to operate on both eyes simultaneously. In a statistical study by Jaensch, it was found that in 96% of cases the tension was normal after one year, and in 91% after three years; the visual acuity decreased from 71% to 40%, and the number of unaffected paracentral scotomas decreased from 65% to 12.5%. These figures indicate that in spite of obtaining a normal tension regulation, the visual function continues to decrease, probably also aided by increasing lens opacities. Jaensch concludes that early operative interference is advisable.

The opponents of this method do not point to the continued functional loss of the eye as its chief contraindication, but to the many compli-

cations and late infections that may occur, in spite of the simple and easy technic claimed by many.

Davenport in a study of the complications that occurred in 405 Elliot trephine operations found loss of vitreous in seven, iris prolapse in two, hemorrhages in the fundus or vitreous in nine, choroidal detachment in ten, all of which cleared up, traumatic cataract in one, many increases in cataract formation despite technically perfect operations, acute infection in two, with a low grade synechia-forming iritis in practically all cases, but usually harmless in effect. In addition there were fourteen cases of late infection, necessitating two eviscerations.

The most important of these complications is naturally the late infection, as it usually results in loss of the eye. and hangs over the head of the operator like the sword of Damocles. Scardapane in enumerating 232 cases quoted in the literature of late infection following fistula-forming operations found 208 after Elliot, ten after LaGrange, the remainder after iris inclusion operations. In 100 operations there resulted 2.27% late infections for Elliot and 1.54% for LaGrange. About 1.5% late infections occur following Elliot trephine operations. Stock believes the cause to be button-holing of the conjunctiva at the time of operation; Scardapane believes it due to an infected conjunctiva or the fact that bacteria may wander through the thin conjunctival cover of the filtering cushion. Most of the infections occur within six months following the operation. A small number of cases of sympathetic ophthalmia have occurred.

The question of cataract formation is also of utmost importance. Enroth enumerated 89 cases of trephine operations, in which the lenses were clear before operation and no lens trauma occurred during the procedure. Opacities occurred in 26 eyes, including ten, mostly with glaucoma simplex, within the first year postoperatively. It usually occurs shortly after the operation, and is probably due to the marked hypotony with its accompanying nutritive disturbance.

The trephine operation is contraindicated in an infected conjunctiva, tear sac infection and dacryostenosis. It should also not be attempted when the neighboring region is infected by an eczema or herpes, and where the patient's hygienic habits are none too good and it would be impossible to obtain a clear operative scar. One can also include eyes where the conjunctiva is thin and contains sclerotic blood vessels. Jaensch does not believe it should be repeated a second time on the same eye. In contradistinction to Wilmer, I believe it should not be done on both eyes, but that other methods, preferably a cyclodialysis on one eye first, and if not satisfactory, then a trephine on the second eye. In one eyed individuals a cyclodialysis should be the operation of choice, keeping in mind the possibility of the occurrence of a late infection.

Massage of the eyeball following operation has been recommended by Hallet and Herbert, to keep the fistula functioning properly.

Iris inclusion methods. The results with these methods—iridencleisis of Holth, iridotasis of Borthen, the flap-sclerectomy of Herbert—are not voluminous enough at present and are founded upon too small a series of observations and statistical analyses to be compared with the proven procedures. The Holth iridencleisis operation is the one most frequently employed and its usefulness has been reported upon by Holth, Gunnefesen, Morax and Gjessing. Gjessing found the tension remained normal in 77 out of 113 cases. In the same series the vision remained the same or even improved in 83.7% of cases, the visual field remained stationary in 76%. His conclusions are that the results regarding vision and visual fields are better than those following trephining, with the danger of late infection much less.

(d) *Cyclodialysis.* The growing recognition of the complications and dangers of the fistual operations has led to a wider use of iridectomy, and also the use and systematic investigation of the cyclodialysis operation. It was found that it was one of the safest forms of operation to employ. Wilmer is of the opinion that no serious complication can follow this surgical procedure. This is probably not entirely true.

Reports of the effectiveness of this procedure are varied. Stock is very skeptical; he observed excellent lowering of tension for several weeks following operation, but poor permanent results, and now seldom employs this method. Much better reports have been noted since Elschnig advised detachment of the ciliary body over a much larger area. He reported the end results in 605 cases of cyclodialysis to be as good as by the various other methods; viz., in compensated glaucoma the tension became normal in

85% of cases, and remained unchanged or even became better in 73%. Elschnig advocates its use in compensated as well as incompensated glaucoma in preference to trephining. Cords also believe it to be the best type of surgical interference in compensated glaucoma, as it can be repeated, if necessary, without any danger, and does not interfere with the use of any further procedures if they are found to be necessary.

Krückman advocates its use in glaucoma simplex and chronic inflammatory glaucoma, and especially in one eyed patients on account of the little danger of infection and other complications.

Wilmer advises its use in cases of glaucoma with retinal hemorrhages, in cases with a very shallow anterior chamber, in glaucoma following cataract extraction, and in cases with very high tension as a preparatory operation.

Elschnig had the good fortune to examine an eye histologically in which a successful cyclodialysis had been previously performed. He found a patent channel running from the anterior chamber into the choroidal spaces, thereby partially refuting the old theory that the mechanism of a cyclodialysis was due to an atrophy of the ciliary body.

In enumerating the end results of glaucoma operations, systematic observations must be employed. A period of at least three years should have elapsed and during this time periodical visual field tests should be made. The tension should be taken at regular intervals and preferably five times a day, so as to be able to observe the tension curve. The early A. M. tension will reveal any unknown tension increases during the night, as these increases may account for the continued decrease in visual function in spite of the normal tension readings found during the day.

1. Preparatory procedures before surgical interference.

We all know from clinical experience that the tension at the time of operation should be as near normal as it is possible to obtain in order to avoid a sudden decrease in pressure with its attendant dangers. Many surgeons favor the use of a posterior sclerotomy preceding an iridectomy or fistula-forming operation. In some cases one may obtain the same result with the intensive use of miotics. One may also employ the use of intravenous injections of hypertonic NaCl solution one-two days previous to operation. Fromaget advocates the use of retrobulbar injection of novocaine-adrenalin solution. The tension may be considerably lowered by the contraction of the ciliary blood vessels. In many acute cases the corneal edema disappears, thereby enabling the operator to work more easily. The resultant exophthalmos enables a better exposure of the operative field.

2. Massage of the eyeball frequently results in a lowered tension. Herbert advises massage following fistula operation in order to keep the fistula functioning.

3. In absolute glaucoma where enucleation is not consented to, one may perform a retrobulbar injection of novocaine-adrenalin followed by retrobulbar injection of 1 cc. 90% alcohol resulting in marked chemosis and protrusion of the eyeball, and paralysis of the external eye muscles. These alarming symptoms gradually recede and the eye becomes painless. The procedure may be repeated, if not entirely effective. Elschnig injects two—three cc. 80% alcohol into the ciliary ganglion with good results.

4. Roentgen therapy may be employed in cases of hemorrhagic glaucoma. It occasionally results in complete loss of pain. Radium may be used with some success in cases of chronic inflammatory glaucoma, or even preparatory to operation.

To summarize, the indications for iridectomy are somewhat more limited than is the popular conception. In acute incompensated glaucoma, firm anterior adhesions are formed within 48-72 hours following the onset of the attack, and consequently, the earlier an iridectomy is performed, the greater are the chances for restoration of normal intraocular drainage. An iridectomy may also be indicated in simple compensated glaucoma in which there is an abnormally deep anterior chamber in spite of increased intraocular pressure. It may also be used in secondary glaucoma which has failed to yield to medicinal therapy, and then only when the anterior chamber is not too shallow.

Cyclodialysis cannot be a cure for increased intraocular tension except in unusual cases. Henie stated that "The more urgent the indications for operation, the less successful will be the results of cyclodialysis." It is a valuable adjunct to the miotic treatment of compensated glaucoma when the operative indications are ob-

served. In cases of compensated glaucoma that are just beyond the control of miotics, in chronic incompensated glaucoma where iridectomy has just barely failed of success, and in hypertension that at times occurs following a successful lens extraction, cyclodialysis may be of the greatest service, especially if followed by miotics.

The indications for the use of operations of the fistulizing type are rather broad. In acute incompensated glaucoma in an early stage, a fistulizing operation offers no greater chances for success than does a skillful iridectomy. But in the later stages and in the chronic forms, the fistulizing operation comes into its own. Compensated glaucoma in the early stages does not require operative interference as drastic as a fistulizing operation, but in the later stages no other form of surgery offers the same chances of success. In absolute glaucoma, operative procedures are usually unsuccessful. In juvenile glaucoma, better results have followed fistulizing operations than any other form of surgery.

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DISCUSSION

Dr. Louis Bothman, Chicago: We agree that the von Graefe iridectomy is the operation of choice in acute congestive glaucoma. In India, where there are a great many such cases during the rainy season, they use this procedure exclusively with very gratifying results. We agree with Dr. Meyer that the successful results with this operation in the chronic type of glaucoma must be due to iris incarceration or a fistulating or cystic scar.

The incidence of choroidal detachment (only 10) in Davenport's 405 cases is too low. If all cases of intraocular operations are carefully examined daily for four or five days, the surgeon will find a very high incidence of choroidal detachment. When a postoperative case has a shallow or unformed anterior chamber twenty-four hours after operation one must suspect such a complication, and if he searches for it the evidence is usually there. Fortunately, the choroid reattaches with no after-effects in almost all cases. I have seen only one case in which it persisted for eight months, and then reattached three weeks after a plastic operation for hypotony. For this repair I used a piece of superior rectus tendon. A year later (three weeks ago) I removed the lens from the same eye. Five days after the cataract operation the nasal choroid again was detached but has since reattached and the patient has 0.3 vision with some lens cortex still unabsorbed.

Davenport and others' fear of a fistulating operation is like the fear of the average surgeon of sympathetic ophthalmia, but the latter happens much more frequently. I am studying and will report shortly a series of about 200 such cases with no late infections. I have never seen a late infection. The low-grade synechiae-forming iritis occurs in less than 20% of cases with no serious consequences.

I do not think buttonholing of the conjunctiva is the cause of either type of infection. If you test your draining bleb with fluorescin you will be surprised to find that many cystic scars have minute breaks through which aqueous filters and still have eyes free from infection. We do not believe that iridectomy is responsible for the relief of tension in such cases. We believe that reduced tension is purely mechanical and without posterior synechiae would function even without iridectomy.

The development of cataract after a fistulating operation cannot be blamed on hypotony alone. This occurs as often in glaucomatous eyes which are not operated on, whether under miotics or not. We have not seen it more frequently in fistulating eyes.

We do not agree with Jaensch who says that fistulating operations should not be repeated. We have several cases where the first wound closed, and have operated on the eye again with good results. We have operated on both eyes of several patients, and twice on both eyes at the same time. Just two weeks ago I saw such a patient nine years after her operations. She still has normal tension in both eyes and 20/15 vision in the seeing left eye.

We feel no hesitancy in doing a fistulating operation on a patient's only eye even when the fields are contracted to within a few degrees of the point of fixation. We agree that massage after these operations is good treatment.

In cases with infected conjunctiva where an immediate operation is indicated, the safest procedure is to do a posterior sclerotomy through the lower lid, avoiding the lower conjunctival cul-de-sac. The skin can be sterilized with iodine and if the fornix is avoided, there is little danger of carrying in any infection. This may afford relief until the conjunctiva can be treated and the eye operated on later.

The cyclodialysis operation is not without danger. I saw in consultation a case of vitreous hemorrhage following such a procedure. When Professor Lindner operated in our clinic recently, he demonstrated his modification of this procedure. This consisted of using a 2 mm. trephine, removing a disc of sclera and doing the dialysis through the opening. I have used this procedure once since with a satisfactory result.

We use Fromaget's injection (adrenalin alone) to reduce the tension preoperatively when it is over 50 mgm of mercury and have found it satisfactory. Dr. Wiener of St. Louis does an anterior chamber puncture and waits half an hour for the chamber to reform before completing the operation. I have seen him use this with satisfying results.

In conclusion, permit me to call your attention to Professor Lindner's vitreous fistula operation for blind painful glaucomatous eyes. He uses it in cases where an enucleation would otherwise be done. After lifting the conjunctiva and exposing the sclera he touches the sclera with a diathermy button for an area of 4 mm. in diameter and removes a 2 mm. button of sclera from the center of this field. There is no hemorrhage, for

the choroidal blood is coagulated. A needle knife is thrust into the cavum oculi and vitreous is allowed to escape, after which the conjunctiva is sutured. In our two cases the pain has been relieved and the patients still have their eyes.

Dr. Samuel Meyer, Chicago (closing): Late infections in trephine operations do occur because we have had two in the last three months. I am going to offer a word of advice; that is, besides using typhoid or other foreign protein, try an x-ray exposure of 2/3 skin unit to the eye involved. I tried it once and in this case the eye cleared up very well. I used this at the suggestion of Dr. Gifford, who stated they were having success in clearing up pyogenic infections in the surgical department at Northwestern University. In attempting to lower tension, inject 0.2 c.c. each of pilocarpine 2%, cocain 2% and 1:1000 adrenalin solution retrobulbar. This will lower the tension so that you can sometimes deepen the anterior chamber and operate successfully.

TONSILLECTOMY IN PULMONARY TUBERCULOSIS

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The subject that I am about to take up has to do with the removal of infected tonsils in active tuberculosis.

There has long prevailed a most conservative attitude toward tonsillectomy in active tuberculosis based upon fear, 1. Of increasing the tuberculous activity; 2. Of producing an acute local lesion at the site of operation; 3. Of lowering the resistance through hemorrhage; 4. Of dysphagia.

I have observed that when tonsils which are diseased and are sources of infection have been removed, tuberculous patients have shown practically the same degree of general improvement as non-tuberculous patients. A tuberculous patient whose progress toward recovery is retarded by pathology in the tonsils should not be denied the benefits of tonsillectomy because he has tuberculosis, even if the disease is quite active. He should be given the benefit of the removal of a focus of infection. If you do not discriminate against the tuberculous patient with chronic foci of infection, such as teeth, sinuses, urinary or gastrointestinal infection, why should you discriminate against one who shows evidence of pathology in the tonsils. The amount of infectious debris and material in the diseased tonsil can only be partially estimated. Its extent can only be determined at operation.

There is such overwhelming evidence that the tonsils are important avenues of infection, that one is forced to the conclusion that they contribute not only directly to infection of varied sorts but also by lowering resistance to disease of any type.

Since the treatment of pulmonary tuberculosis is directed primarily toward building the patient's resistance to infection, it becomes a major premise that those conditions which lower resistance should be removed. Naturally then the profession advises the removal of all foci of infection.

The incidence of tubercular tonsils in adults who have active tuberculosis is somewhere between 42 per cent. and 62 per cent. and is proportionately greater in more advanced cases, the tonsillar involvement in general being directly proportional to the degree of lung involvement. It is the opinion of most students of the disease that in the majority of cases the tonsil becomes infected by means of sputum contamination rather than infection by the hematogenous route.

The patients I have operated on were carefully selected. No patient who was septic or in a hopelessly advanced stage was operated on. The indications for operation were based chiefly upon history of repeated tonsillitis or peritonsillar abscess; Secondarily, on local evidence of gross pathology such as hypertrophy, scarring, pus on pressure or excessive cryptal debris.

It is obvious that the patient's general history and previous progress were given careful consideration.

All of them had evident active pulmonary disease, some with an afternoon temperature as high as 101°.

Those patients who had had a pneumothorax or phrenic operation two months prior or six months after tonsillectomy were excluded from this report because such procedures might be interpreted as the cause of subsequent improvement. I was not especially concerned as to whether or not, the tonsils were tubercular, or if acid-fast T. B. organisms could be obtained from smears or cultures, but was concerned as to how sick a tuberculous patient could be and still be operated on and given a better chance of recovery.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 22, 1935.

This report is based upon operations on 118 patients. The operations were done under local anesthetic, the patient being in the operating room approximately 15 minutes. They were returned to bed with proper postoperative care.

Some very interesting facts were obtained.

Seventy per cent. of all class operated on showed improvement in general condition, gain in weight, one, three, and six months after operation. This was the usual finding. Of these six positive sputums became negative and remained so.

One case with a negative sputum, temperature of 99° at the time of operation, had a bad reaction, but this was compensated for at a later date by a gradual improvement and gain in weight.

In twenty per cent., the active tuberculous condition was unchanged.

Nine per cent. left the hospital two months following operation. Their condition was unchanged at this time and no further record could be obtained.

CONCLUSIONS

1. There is just as definite an indication for the removal of infected tonsils in pulmonary tuberculosis, both active and quiescent, as there is for the removal of focal infection elsewhere.

2. The benefits derived by a tuberculous patient are the same as these derived by non-tuberculous patients.

3. Active pulmonary tuberculosis *is not to be* considered a contra-indication for tonsillectomy when the operation is indicated.

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This work was done at St. John's Sanitarium, Riverton, Illinois.

DISCUSSION

Dr. A. R. Hollender, Chicago: This subject is always of interest because of the apprehension which exists when tonsillectomy in the tuberculous patient is considered. In a rather limited experience in this work at the Chicago Municipal Tuberculosis Sanitarium a few years ago, I had an opportunity to observe the results of surgical and electrosurgical tonsillectomy in a rather large number of cases. I concluded that, while surgery can be performed successfully, it must be done by an expert under local analgesia as the time factor and trauma incurred during operation are undoubtedly responsible for lighting up the pulmonary focus. Special preparation and expertness of technic usually avoid this contingency.

The work which I reported before this Section several years ago had to do with the electrosurgical removal of tonsils in the tuberculous. I was able to extirpate the tonsils by fractional electrocoagulation in unselected active cases without lighting up the focal process. This was proved by careful clinical and roentgenologic check-up. While I subscribe to the fact that surgery can be performed without hazard in the large majority of these cases, I doubt whether it would be safe to advocate it as a routine method. In my opinion, if tonsillectomy in a tuberculous individual is definitely indicated, the choice between surgery and electrosurgery should be made only after due consideration of all factors by the laryngologist and the internist.

Dr. Roland D. Russell, Chicago: I have not had as much experience as Dr. Hollender has with this work, but I have had enough to draw some conclusions and I have discarded electrosurgery for this type of case. If I have any tonsils to remove in tuberculous patients I shall do it by surgery. I think coagulation subjects a very ill patient to a number of distinctly uncomfortable procedures.

Dr. M. H. Cottle, Chicago: This discussion is important and merits a good deal of time, and I think Dr. Broadwell is to be congratulated on his temerity. I think everybody here who has done surgical and other tonsillectomies in private practice has been unfortunate enough to see some of his patients suddenly develop an acute tuberculous process. I think you will all admit that there have been cases where we have been a little perfunctory in our preliminary examination of the patient.

The patients that Dr. Hollender and Dr. Broadwell have treated have been carefully studied and prepared in charity hospitals, and well taken care of following operation. How many have we done in private practice like that? How often are we able in young adults especially to make a diagnosis of so-called infective tonsils? How often is a tonsillectomy really of value in the treatment of this condition?

Dr. E. T. Blair, Springfield: I have nothing to add to the discussion, but I would like to ask a question. He did not mention any incidence of age, and I wondered what was the average age of his patients.

Dr. Francis Lederer, Chicago: The question in my mind is, what is the indication for this procedure? We have a rather large institution, with many patients, and I do not know that I could find 100 that needed tonsillectomy. I wonder if one could not lend the same consideration that we do in private practice during these times when we do not do so many tonsil-

lectomies as the time when the fee did not matter. I can think of many cases of infected tonsils, with crypts, depressions and other indications, but I feel that I could not find 100 cases in this large group of cases of pulmonary tuberculosis where I would recommend a tonsillectomy. These patients go through other surgical procedures where tuberculosis is far advanced, and I see no miracle in their surviving this operation. The question is whether they really need it.

The other consideration is from the standpoint of the patient's condition. I do not know what patients Dr. Broadwell operated on. That term "advanced" is used loosely. If I had a patient with advanced pulmonary tuberculosis, positive sputum, low grade temperature, etc., I would be very reluctant about advising a tonsillectomy; not that I do not think he could stand it, but I think the treatment of the specific focus is more important than the local focus. I would regret very much the broad application of the essayist's philosophy as I believe that a carte blanche indication of this operation in pulmonary tuberculosis would only lead to disaster.

Dr. Stuart Broadwell, Springfield: These patients had been in the hospital for from two to three and a half years. They were selected after having repeated attacks of tonsillitis. I see them once a week. They not only had a history of having had sore throat before they were admitted, but while they were in the institution. These cases were very carefully selected, none were septic, none were in far advanced stages. I did not want to submit them to any undue risk, but where they were on the uphill road, gaining weight, the prognosis of the disease better, I felt the operation was of benefit. The negative sputum made no difference, because it is often negative when the patient is not doing so well, but when it was indicated in these cases I took the tonsils out. The youngest patient was 11 years of age—old for his age, precocious in that he could be handled. The oldest was 47. I did not try to do anything to risk the patient's life, and I did not try to see how far I could go without getting into trouble. I did not get into trouble, but was very conservative.

ORGANIZED MEDICINE MUST DIRECT THE MEDICAL ACTIVITIES OF AMERICA

FOREWORD

The Committee on Medical Economics of the North Side Branch of the Chicago Medical Society (Medical Society of Cook County, Illinois) presents the following epitomized statement for the consideration of the medical profession, which was prepared by a Special Committee, composed of Drs. Fitz-Patrick, Hayden, White, Brooks, Geiger, Griffin, Hugh McKenna, Steinhoff, Levisohn and Parkes (*Chairman*).

Prepared by the Committee on Medical Economics of the North Side Branch of the Chicago Medical Society (Medical Society of Cook County, Illinois).

The data used were obtained from the answers to a questionnaire sent to every member of the Branch, embodying the following five points:

1. The responsibility of the care of the indigent sick and the low income group ($750.00 to $1,000.00 annual income).
2. Physician-patient relationship.
3. The place of the clinic in the problem of the sick.
4. Organized medicine should lead in all legislation and other activities in the problem of the care of the sick.
5. Organized medicine should mould public opinion in matters pertaining to all health problems.

The objective of this group of 450 members of organized medicine is to place this compilation of the opinions and constructive suggestions on medical economics in the hands of as many doctors as it is possible to reach.

It is to be hoped that this statement will be of value to those interested in using every conceivable means to influence public opinion, and thus help to secure for the medical profession its proper place in the economic life of America.

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ANALYSIS OF THE PROBLEM CONFRONTING ORGANIZED MEDICINE

The medical profession recognizes that the sick or injured must have medical care under all circumstances.

The responsibility of providing that care for the indigent sick should rest with all taxpayers. In this connection, attention is called to the fact that the medical profession has always donated its services to this group, until the general public has come to take this altruism as a matter of course.

Why should the medical profession be expected to donate services and at the same time pay in taxes its share of the cost of sickness among the

indigent? Remuneration for this medical service should be added to the other expenses connected with sickness among these people, and the total should be carried equitably by all taxpayers.

Absorbed in the details involved in the prevention and cure of disease, the medical profession has lived apart in the life of the nation, and has failed to secure a leading rôle in public consideration of problems of health.

Heedless of public opinion and the value of its influence in economic affairs, we have drifted until the lay public gives organized medicine scant attention.

It is fair to assume that our present lassitude and inertia in the management of our economic status is the outgrowth of pure, undiluted ignorance, and a colossal indifference as to our association with the body politic.

Of greater perplexity in the economic situation is the so-called low income group among our citizens. To specify a dividing line between the low income group and others is not the least of the perplexities, and much difference of opinion exists in this respect. Here we will consider in that group those whose annual income is $750.00 to $1,000.00.

The main difficulty encountered by those included in the low income bracket is not the physician's fee, which is always a personal flexible equation between patient and doctor, but the excessive costs of hospital domicile, x-ray, laboratory, operating room, and so forth, which are fixed charges in most institutions, and apparently unchangeable, at least at the present writing. The medical profession has ever arranged fees for services in keeping with the patient's ability to pay. Why not our hospitals?

Much doubt arises as to the wisdom in any organized plan whereby the low income group would be cared for even partially out of public monies. This would establish a dangerous precedent. Patients in this group, in view of the fact that they are working and receiving financial remuneration for their services, must not be pauperized. On the contrary, they should be educated into the habit of paying something for medical care, and into the habit of providing for their own medical service. Free or partially free medical service for those in the low income group would soon present many formidable complications. Once acquired, the habit of public assistance to the sick in this group seriously undermines the very foundation of general practice.

Many of our former patients of this group are more or less regular in attendance at some of the advertising clinics now existing, and why not? These people are obtaining a complete check-up, of questionable accuracy and value it is true, at a ridiculously low fee, and all under one roof. In other words, these advertising clinical groups, prompt to recognize our weakness in failing to develop plans or adequately providing means for medical care for the low income group, have thoroughly entrenched themselves in a field which should have been controlled by organized medicine.

For a clearer understanding of this phase of the subject, we must realize that:

1. Within the boundaries of Cook County, Illinois, we have a large transient population, as evidenced by the number of removals on May 1 and October 1. This pertains as well to all other large metropolitan areas.

2. Within the metropolitan areas a large majority of the population is made up of "hand-to-mouth" people, as evidenced by the great number of successful pawnbrokers, small loan companies, and "credit collection and skip agencies."

3. The presence of a really large number of restaurants of all sorts, and of delicatessens, which indicates a large proportion of our people are most certainly not what we know as "homemakers."

4. On the counters or shelves of every drug store, most groceries and delicatessens, department stores, and taverns are to be found patent medicines nationally advertised by "silent salesmen," by newspaper and by radio, for the relief of practically every known ailment.

5. There always will be among our transient population a large percentage of people who will attend group or clinic practice, because the lives of such people do not tend toward stability of location, living, or work, and they therefore have little if any opportunity to obtain or retain the services of a private physician. In addition, many of these people will use group or clinic practice because they will consider it of lower cost and, in their opinion perhaps, of higher professional value, considering what they feel they can afford to pay.

The above-mentioned truths have a considerable bearing on the possibility or lack of possibility of maintaining a personal relationship between the patient and the doctor.

We must bear in mind the normal reaction of the average patient of desiring some one on whom to lean in time of sickness and trouble, and a disinclination to reveal confidences to more than one individual. Therefore, any one physician, be he a private practitioner or a member of a group or clinic, has within himself at all times, by the exercise of his scientific ability and personality, the opportunity of creating and retaining a satisfactory patient-physician relationship.

This personal relationship is of the greatest value to both patient and physician. To the patient, because he knows his own doctor as an anchor in sickness and has confidence in his professional ability and personal integrity. To the physician because, with the establishment of confidence, that psychological effect is obtained which predisposes the patient to accept advice and follow instructions.

Before the advent of the clinic and dispensary orgy, the care of the indigent sick rested with the family doctor, who accepted this burden willingly, until that pressure on his time and strength became unbearable.

With the increasing flood of immigrants from Europe, who had developed the clinic habit there, and the ever-increasing trek of our population to the urban centers, the problem of the care of the greatly increasing numbers of indigent thus centralized has become perplexing.

Many causes have developed as time has gone on for the greatly increased use of clinic mass treatment of the indigent sick, until many irregularities and much chiselling have crept into the picture.

Coincidentally, progress in the science of medicine has made great strides, and changing methods in teaching in the medical colleges have required increasing numbers of cases of the many different diseases for clinical purposes. This trend in medical education for a period of time absorbed the indigent sick, who flocked to the medical school clinics. It has been the general belief that clinics existed for teaching purposes only, and such a belief is fair and equitable, since the educational value of the opportunity to study disease as it exists in fact made the care and treatment of clinic cases of great value to the teaching institutions and their students, and in this way the clinic patient paid for his treatment.

The place of the clinic as an institution for the treatment of the sick has suffered much encroachment by those belonging to the low income group, to the great handicap of the doctor, and a greatly decreased efficiency in diagnosis and treatment. This has developed the feeling on the part of steadily increasing numbers that free medical treatment is an inherent right. They fail to appreciate the fact that the acceptance of anything free, medical treatment or what-not, unless there is a true indigency, decreases both individual and community self-respect, with its demoralizing effect on the public weal.

One must not lose sight of the fact that this low income group constitutes the masses from which the bulk of practitioners obtain their livelihood, hence some set-up must be arranged whereby clinical data may be obtained without great expense, leaving it to the attending personally selected physician to adjust his fees accordingly.

REMEDY

In seeking the remedy we must take into consideration: *First,* our lack of organizing ability; *second,* insufficient funds; and, *third,* the difficulty of attaining harmonious thought on any one question.

A solution of this problem has been suggested in the form of a properly organized central clinic as a set-up in County Medical Societies, for the purpose of aiding in the care of the low income group. This clinic should be manned by the members of the Society who wish for such a connection, and should contain a social service division. The chief object of such a clinic[1] in its initial set-up would be to provide for laboratory examinations and reports, within the means of the patient, for which the private office may not be equipped. Expansion of the facilities of the clinic to meet the needs of the general practitioner seeking additional aid for diagnosis and treatment would be optional with the local county society. It would be of vital importance to the physician sending a patient to this clinic to be assured of not losing his patient, and to

know that all reports, including those of such social service as he might desire, would be given to him alone. Applicants without a personal physician would not be treated by the clinic, but would be assigned, in rotation, to those members who had indicated a willingness to receive such patients. Applicants already under the care of a physician would be sent back to him. Should hospitalization be needed for those patients, a list of hospitals, which had agreed to cooperate with the clinic in a plan to make that care available to the low income group, would be included with other data given to the physician to whom the patient would be referred.

1. The word clinic is used here because clinic has been broadened to include every place where patients go. It allows for expansion of the clinic activity to counteract treatment of the sick by social welfare organizations and lay corporations as such, or camouflaged as partnerships to evade laws prohibiting corporate practice of medicine. It would also tend to counteract the present high prices charged the low income group by the laboratory, hospital, x-ray and non-cooperating specialists.

This set-up has the added advantage of creating and maintaining a satisfactory patient-physician relationship.

This feasible, workable plan for the care of those of the population included in the low income group, with a properly developed and honestly administered social service set-up, could be advocated to the public with safety by all members of organized medicine. This would place the care of the indigent sick where they would pay for their treatment by cooperatively placing themselves in the hands of the medical college as cases for study for teaching purposes. Thus the medical school and dispensary clinic would return to the status of treatment of patients for teaching requirements only, greatly decreasing the abuse of medical charity, and at the same time abolishing the competition of the medical colleges with the very men whom they have carefully prepared for a vocation.

In such great public emergencies as war, any set-up such as the Veterans' Bureau, acting for the Government, should treat only those service men injured and sick in line of duty, and only care for the indigent service men if no other sources for treatment are to be had. The Government should not be in competition in the treatment of the sick any more than it should be in competition with any other line of private endeavor.

The direction of the medical care of the sick is primarily the duty of the medical profession; therefore, in all matters pertaining to the sick the profession should take leadership or direct those upon whom this responsibility falls.

In public consideration of this subject, the best interests of the sick might be more efficiently served by the medical profession acting through a committee or individual in directing public policy in the different geographical sectors into which governmental requirements have divided the States. As an example, this form of medical activity might be directed to the formation of a public policy carried out by the Mayor of a city or the Governor of a State, under control of the medical profession in every detail.

In legislative matters manifestly the profession's influence must be exerted indirectly through the legislators. In this capacity the profession must take an unselfish position in directing law-makers to legislate in the interests of the sick. Recognizing the known fact that greater influence is possible by working from the inside rather than from without, medical men and women in increasing numbers should seek and obtain membership in governmental legislative and administrative bodies, as well as in those of all organizations of social nature, where the problem of the sick enters such activities.

In private matters this will be accomplished most successfully by the profession demonstrating a high degree of efficiency in rendering service to the sick.

The profession should remember that service in the best interests of the public should make for the best interests of the profession, but, however, this may be, the public in the final analysis is interested only in the sick getting well.

To satisfy this public demand, this problem, with all of its ramifying angles, requires that all activities connected with the care of the sick must be placed in the hands of those trained for this medical work.

Organized medicine must develop a plan for a more effective guidance of public opinion.

It is not sufficient that the public knows that only by the untiring, unselfish and laborious delvings in research by the medical profession has progress been accomplished in the prevention and cure of disease. The public must be impressed by the irrefutable fact that to maintain what has been gained and to continue progress,

the public and the medical profession must labor in unison for their mutual benefit.

Organized medicine always has been altruistic in attempting to guide public opinion. Committees on "Lay Education" are part of the organization set-up of all medical societies. These committees prepare and distribute carefully written articles for the local press. They use the radio for the same purpose. Public lectures by committee arrangement are effective, and many are given to large and attentive audiences. To be most effective, these lectures should be given on a definite plan, to avoid being haphazard both as to subject and follow-up. Throughout organized medicine the committees on medical legislation work tirelessly and effectively, and have saved the doctors much grief.

All of these things are getting us somewhere slowly and, given time, the public will learn the value of the viewpoint of the doctor in his special field. However, the static interference of ambitious lay foundations with medical aspirations but garbled knowledge, re-enforced by greedy corporations dabbling in and peddling "cure-alls," hampers this effort materially.

The plans now operating depend in a large part on free publicity and paid advertising in the various types of news agencies. Without the necessary funds, progress here is slow and discouraging, and results are limited in volume. To compete with the quacks and lay corporations by newspaper and radio requires proper and frequent advertising in the powerful newspapers and over the radio, if the public is to be educated adequately by this means.

The newspaper world appreciates the objects and efforts of organized medicine, and goes far to promote those purposes by giving us some space in their columns, but in the last analysis a newspaper is a business enterprise, and depends on its advertising space for a large part of its income. If much is to be accomplished in this part of the plan, funds must be raised to buy far more space and time.

While the committees do effective work, their efforts perforce must be limited. Therefore, plans for the accomplishment of our purpose must first major on the fact that this activity must have the participation of all members. Every doctor, and all his close contacts, must be educated promptly by organized medicine, and stimulated to carry our propaganda throughout the length and breadth of the land. Every member of organized medicine, calculatingly and indefatigably, should talk with his patients, his close friends, those he meets on the golf grounds, and everywhere else, about the simple fact that there must develop a clearer understanding and a closer relationship between the public and the medical profession, and how to bring it about.

The doctor must be the mentor and friend of the mother, who guides the destinies of the family in matters of this kind, and not let her drift to the welfare and social worker organizations for pre-natal care and advice in the raising of her children. She should be thoroughly impressed with the fact that in matters of health the only safe course to pursue is that laid down by those men and women who have given their lives to the study of health matters, and who are grouped together in organized medicine. With this definite conviction established, she will feel it her duty so to train her children, and by her influence in the Parent-Teachers' Associations, and other organizations connected with education, will supplement her home training with training in the school, toward the objective of a closer relationship between the public and the medical profession.

Women lead in humanitarian activities and, therefore, we should reach larger numbers of women by extending our activities throughout the field of the powerful women's clubs and their federated organizations. By acquainting them with the facts, we will enlist their support for our program.

The Woman's Auxiliaries throughout organized medicine should compose the "shock troops" to reach lay women. With the help of the medical societies with which affiliated, these auxiliaries should prepare addresses and send good speakers to these women's clubs. As individuals, they should attend the meetings of women's clubs, and be prepared to give an intelligent discussion on all matters which pertain to public health coming before those organizations.

Through our survey we have obtained the viewpoints of a cross-section of a large group of doctors, which have been crystallized into this analysis of and remedy for the complex subjects covered by our questionnaire.

The objective we hope to reach is to put this

statement in the hands of as many doctors as possible, as important data to be used in influencing lay contacts.

Great impetus will be given to the attainment of the objective of developing a better understanding among laymen of their dependence on the doctor in matters of health when the 160,000 doctors in the United States energetically and consistently disseminate the same information to the lay public.

The inevitable result of this concerted effort will be that public opinion will swing to place medicine in the position of influence to which it is entitled in the economic life of the country.

THE ADEQUATE TREATMENT OF EARLY SYPHILIS

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The problem of syphilis is one that confronts every general practitioner as well as every specialist. Syphilis is one of the most important diseases that the physician is called upon to treat. The early treatment of this condition commonly spells the fate of the patient, for the adequacy or inadequacy of this early treatment determines the subsequent course of the disease, but even more important than this is the fact that the future eradication of syphilis as an epidemic disease depends largely upon the solution of the problem of administering sufficient early treatment. It is for these reasons that an adequate knowledge and understanding of the treatment of early syphilis on the part of the medical profession is of far reaching importance. If all cases of early syphilis could be properly treated and managed from the time of the earliest manifestations it would not require many years to eradicate the disease from the face of the earth. It is our aim to present today for your consideration a uniform scheme of continuous treatment of early syphilis which is considered by authorities on the subject as adequate and efficient to control the infectiousness of the disease and to prevent the late disastrous sequelae of the disease.

For more than four centuries the only specific drug that was used with a modicum of success in the treatment of syphilis was mercury. This drug for centuries was the storm center of therapeutics and has known innumerable reversals and revivals in the past. Since mercury is a protoplasmic poison and its therapeutic dose is close to the toxic dose, intermittence in its use was a necessity for the sake of the host, irrespective of the effect it had on the parasite. The method of intermittent treatment of syphilis, that is, periods of intensive treatment with rest intervals, was devised and popularized by Fournier. The rest intervals were a necessity then as this gave the host an opportunity to eliminate the stored up mercury. This constituted the chronic intermittent treatment with mercury over a period of three to five years, and it was the almost universal system of treating syphilis up to about 1910.

With the introduction of the arsphenamines it was thought at first that one or, at most, a few injections of this drug would "cure" the disease. This was later extended to one full course and was thought to be sufficient to "abort" or cure an early case of syphilis. This method has now been entirely abandoned as totally inadequate and productive of late sequelae.

Pollitzer in 1916 introduced the intensive method of treatment which consisted of a maximum arsphenamine phase (three to four arsphenamine injections in three to eight days) followed by a prolonged heavy metal course. This method also has been found to be impractical, inadequate, and even dangerous in the hands of the general practitioner.

A method never advocated by any physician and yet commonly used is the irregular method. In this method of treatment the patient adheres to no system or scheme of treatment. This type of treatment is usually the one received by our peripatetic patients with syphilis, such as traveling salesmen, actors, etc., and is, of course, the least efficient one.

Out of these various schemes and methods and out of the united efforts of the syphilologists of the entire world, under the auspices of the League of Nations, and especially due to the combined efforts of American syphilologists of several of our leading syphilis clinics in association with the United States Public Health Service, the

From the Department of Dermatology and Syphilology, Northwestern University Medical School.

Read before Section on Public Health and Hygiene, Illinois State Medical Society, May 22, 1935.

overwhelming advantage of the continuous (no rest period, no neglect period) method of treating early syphilis has been established. By the term "continuous method" is meant uninterrupted treatment with an arsphenamine and a heavy metal, usually administered in alternation.

The superiority of continuous as compared to intermittent or any other method of treatment was first recorded by Almquist in 1920, although priority of adopting this method belongs to Keidel of the Johns Hopkins Hospital Syphilis Clinic. By plotting a curve of the course of serological changes and tendencies to relapse in a large group of cases on intermittent treatment, Keidel showed that the line was an undulating one, the crests (relapses, positive serology) coinciding with the rest periods and the depressions (negative serology, symptomatic cure) with the treatment periods. The curve for a large group of patients on continuous treatment is at first a horizontal one, then a gradually drooping line.

These findings of Keidel and Moore have been substantiated by the statistics and experience of the cooperative clinical group. The superiority of the continuous method of treatment. the treatment that allows no rest periods, is explained by Bethea in the following parable: "As I view this it is like trying to save a burning house. The firemen do not work a while and then rest a while, knowing that the conflagration will spread; they work continuously, using water, chemicals, or whatever may be indicated, until the fire has been completely extinguished."

By the term "early syphilis" is meant that period of the disease in which the patient is highly infectious and without treatment constitutes a menace to society. This term, therefore, includes syphilis in the first two or three years of its course, that is, the period of inoculation, the primary incubation period, the early secondary manifestations and the late secondary syphilis. Early syphilis may also be divided into two periods. The first is the sero-negative phase where the diagnosis is made by the dark field. This is the "golden opportunity" period of Pusey. The second period of early syphilis is the sero-positive phase where the diagnosis is made or confirmed by the routine Wassermann test. This phase may be termed the "silver opportunity." The diagnosis of early syphilis must be confirmed by a reliable laboratory, and as soon as a diagnosis is made treatment must be instituted. The results of the dark field, Wassermann and Kahn reactions should be awaited with the same interest and anxiety as the white count is in a suspected case of appendicitis, and treatment must be given with no more delay than the appendectomy.

In the treatment of early syphilis the physician of today is fortunate in having at his disposal four drugs instead of only the one (mercury) of his forefathers. The four drugs used today are arsenic, bismuth, mercury, and iodine.

Arsphenamine was introduced in 1910 by Ehrlich. At the present time we have at our disposal two types of arsenical preparations in the treatment of syphilis, namely, the trivalent and pentavalent. Graphically, the arsenical drugs used at present are:

Trivalent { arsphenamine, neo-arsphenamine, sulpharsphenamine

Pentavalent { tryparsamide, stovarsol acetarsone

For early syphilis we advocate the use of neo-arsphenamine in doses of 0.3 to 0.6 grams at weekly intervals in ten week courses with a total dose of 4 to 5 grams for adult females and a total dose of 5 to 6 grams for adult males.

Bismuth was introduced in 1921 by Sazerac and Levaditi and numerous reliable preparations are on the market. Generally, all bismuth preparations may be divided into (a) water soluble; (b) oil soluble, and (c) oil insoluble. Each of these preparations has its advantages and disadvantages, but the consensus of opinion is in favor of the oil insoluble bismuth salicylate.

Bismuth salicylate is given intramuscularly in doses of 0.10 (1.5 grain) gram to 0.20 (3 grains) gram, the average dose being 2 grains, at weekly intervals in ten week courses. The total dose for adults is 1 to 2 grams. Bismuth preparations must never be given intravenously.

Mercury is an ancient drug and should be used in early syphilis in the form of the rubs (unguentum hydrargyri 50 per cent. to 30 per cent.), or as the insoluble mercury salicylate in oil in doses of 0.10 gram (1.5 grain) to 0.20 gram (3 grain), average dose 2 grains, at weekly intervals in ten week courses. Mercury by mouth is *never* to be used in early syphilis, as it is the least efficacious of all methods.

Iodine was introduced into the treatment of syphilis by Wallace of Dublin in 1834. Iodine

has no specific action and is used only as an adjuvant to specific treatment. It is best given in the form of the iodides of sodium or potassium in saturated solution in doses of 5 to 10 drops t.i.d., p.c.

Using these drugs continuously and administering them in alternation, how long should treatment continue? The sero-negative (golden opportunity) patient whose blood remains negative throughout treatment should be treated continuously for a minimum period of seventy-five weeks. At the end of this period it is imperative to do a spinal fluid examination. Given, then, a sero-negative patient whose serology remained negative throughout the seventy-five weeks of continuous treatment and whose spinal fluid examination is negative in all tests (cell count, globulin, Wassermann, Kahn, gold colloidal curve), such a patient may be considered cured and he is kept under observation for a period of five years, preferably for the remainder of his life with periodic physical and serological check-ups.

A sero-positive case should receive continuous treatment until the serology becomes permanently negative and then the treatment is continued for a minimum period of seventy-five weeks. Before the treatment is terminated, a spinal fluid examination and a cardiac examination are imperative.

The following outline of treatment is suggested. It is simple to remember by the rule of ten.

SERO-NEGATIVE EARLY SYPHILIS

Course	Singl Dose	Total Dose
1. 10 weeks of neo	0.3 to 0.6 gm.	4 to 5 gm. for female 5 to 6 gm. for male
2. 10 weeks of bismuth	0.1 to 0.2 gm.	1 to 2 gm.
3. 10 weeks of neo	0.3 to 0.6 gm.	4 to 5 gm. for female 5 to 6 gm. for male
4. 10 weeks of mercury	0.1 to 0.2 gm.	1 to 2 gm. or rubs of ung. hydrarg. 30% to 50%
5. 10 weeks of neo	0.3 to 0.6 gm.	4 to 5 gm. for female 5 to 6 gm. for male
6. 10 weeks of bismuth	0.1 to 0.2 gm.	1 to 2 gm.
7. 5 weeks of neo	0.3 to 0.6 gm.	2 to 2.5 gm. forfemale 2.5 to 3 gm. for male
8. 10 weeks of bismuth	0.1 to 0.2 gm.	1 to 2 gm.

CONCLUSIONS

It is our opinion that the treatment as outlined constitutes the minimal amount necessary to prevent the spread of the disease and to achieve a "cure," or at least permanently arrest the disease process.

We wish to emphasize the fact that every patient with syphilis must receive an irreducible minimum of treatment, irrespective of the presence or absence of symptoms and the outcome of the serologic tests, and that in primary and secondary syphilis the patient should receive as vigorous treatment as is consistent with his safety.

We definitely believe that continuous treatment is superior to interrupted treatment; that the introduction of even a few weeks of complete rest from treatment into the management of at least the first eighteen months of the disease is profoundly injurious to the patient and is not in the best interests of the public health.

These conclusions are based upon a thoughtful consideration of the published results in different parts of the world.

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DISCUSSION

Dr. A. W. Stillians, Chicago: The paper of Dr. Dorne and Dr. Zakon is a timely one because of the awakened hope that we can eradicate syphilis. Dr. Zakon has some remarks to make on that later. In this country our great effort must be to obtain cooperation among the physicians, among the general practitioners in order to accomplish this end. We at Northwestern have been using this uninterrupted treatment for some time, but there are others that do not realize the necessity of it. Our effort is to bring it to their attention. In this country we have difficulties that they do not have in Europe in following up our cases. Over there everybody is registered. They cannot move from one place to another very easily without being found out. Here they move freely and we lose them. In Chicago our great difficulty is in getting follow-ups and bringing back the delinquents. We must have a better system for that.

The great difficulty with these patients is their lack of intelligence and their lack of willingness to cooperate. They do not realize that we are working only for

their good. Our social service department at Northwestern is doing good work trying to educate them in the facts of syphilis, but that is a long job. There is no question but that we shall be much slower in obtaining such good results as are obtained in Europe, especially in Denmark.

In this short paper there was no opportunity to emphasize the many points of care we have to take in treating these patients; the way we have to watch them, and to individualize treatment. The effort is not made to lay out a plan that can be applied without reservations to all cases of syphilis. I think this subject should be brought up on every occasion and within the next few years we may see great improvement in our syphilitic population.

Dr. H. Phillips, Anna: In our institution we have about ten per cent. of our population syphilitic. You know the mental hospitals have about that percentage, depending upon where it is located. I couldn't help but say something on this subject because of the large number of patients we have. I think another problem of syphilis is the fact that we do not know enough as yet about the different forms of spirochetes. There is a type of spirochetes which is capable of penetrating the central nervous system without the invasion of other organs of the body. This can be best shown by a series of cases we have at the institution now; after they were exposed, in a comparatively short time each and every one of them came down with neurosyphilis.

I think the spinal fluid in the early cases is another feature. When we do a spinal puncture, we find a moderate pleocytosis in these early cases. So often in early syphilis there is some involvement of the central nervous system. I don't feel that spinal puncture is good procedure in the primary stage. The central nervous system can be invaded by a spinal puncture during the chancre stage. Therefore, I defer it until after a few shots of neo or bismuth have been given. We have been using at the institution a rather unique procedure, giving the arsenicals in some of the early cases we get about every fifth day because we find that about the fifth day the spirochete is at its lowest ebb; therefore, we give them arsenicals about that time. We give our bismuth twice a week. We don't use bismuth in oil. I think the question of bismuth elimination is also worth consideration. The usual course of bismuth therapy comprises about ten treatments and is eliminated in about 30 days, by testing the fluid and also the urine of our different patients.

Dr. J. J. McShane, Springfield: I would like to ask Dr. Dorne as to the treatment the institution carries on in those patients beyond fifty years of age, with the Wassermann still positive.

Dr. Maurice Dorne, Chicago: What do we do with patients above the age of 50? Of course, before treatment is started in any case the patient receives a thorough and complete physical examination, including a neurological, eye and cardiac examinations. These patients, if they are cases of latent syphilis, are treated primarily with the heavy metals, otherwise they are treated according to the method described.

Dr. Zakon, in closing: It is not possible in the space of a few minutes time to cover adequately the entire subject of the treatment of syphilis. We didn't try to do that. What we tried to do today in the few minutes time was to bring out a few salient facts. They are: 1. early diagnosis, preferably by the dark field, and 2. the continuous method of treatment, with all of the antiluetic drugs instead of one or two, for a minimum period of a year and a half and a life-long observation of the patient with frequent serological and physical examinations, and with special emphasis on the cardiac and central nervous systems. It is only by doing this and by keeping exact statistics that we can ever answer the question as to whether we do ever cure a case of syphilis. We realize that we must never look at this subject from a dogmatic point of view. We must look at it from a dynamic instead of a static point of view and what we believe to be the best treatment today may have to be altered in a year or two. But, with the present knowledge which we possess and with the work that has been done under the auspices of the League of Nations, we believe that the continuous method of treatment as we outline to be the best treatment at the present time.

Now, we cannot answer many of the questions of Dr. Phillips because that enters into the field of bacteriology. It has been debated for years whether there are different strains of spirochetes; it has been claimed that some spirochetes attack the skin, some the bones and some the nervous system. We don't know; we don't believe it. We believe that the difference in the clinical manifestations of the disease depend more on the host than on the type of spirochete.

I have a few slides to show that will illustrate some of these points.

CONGENITAL ABSENCE OF LEFT TUBE AND OVARY

Report of a Case

C. Paul White, M. D., F. A. C. S.

KEWANEE, ILL.

It is significant that I should speak of a unilateral absence of a tube and ovary rather than to speak of a malformation. Truly, it is a malformation, but complete absence is rare, while other malformations are more frequently reported. More often than not, rudimentary tubes and ovaries are found. The tube may be but a stub at the cornu of the uterus, or a shred of connective tissue in a nearby fold of the peritoneum, while the ovary may be found almost any place in the pelvic cavity, probably more commonly found in the inguinal canal, the labia, post-peritoneal wall and even as a calcified mass in the free peritoneal cavity of the pelvis.

Presented before the Section on Surgery, Eighty-fifth Annual Meeting, Rockford, May 22, 1935.

In any event, if one is to have an understanding of such malformations, one must have an understanding of the embryological development of the female generative tract.

With the exception of the lower portion of the vagina and a portion of the bladder and the urethra, both the excretory and reproductive systems are mesodermal in origin. The mesonephros is found along the posterior wall of the coelom, the future peritoneal cavity. It is situated retroperitoneally and as it grows, the peritoneum is pushed forward as a fold into the coelom. This fold later contains the Mullerian duct and the genital gland in addition to the mesonephros and the Wolffian duct and is termed the urogenital fold. The genital gland develops from the coelomic epithelium anterior to the mesonephros and medial to the Wolffian duct. It finally separates itself by a stock or mesentery from the rest of the fold and develops into the ovary.

It is from the Mullerian duct that the uterus, cervix, upper vagina and fallopian tubes develop. The cranial end of the duct forming the fallopian tubes while the caudal ends burrow down and fuse to form the uterus, cervix and upper two-thirds of the vagina. This occurs at about the 56 mm. period of the embryo. When they fail to fuse, you may have all manner of malformations of these organs. (Curtis.)

According to Wharton (Lewis) malformations are due to defective germ plasm or unfavorable embryonic environment.

Some ova are abnormal before implantation while others lack vitality. The course of defective ova is likely to be short and eliminated by miscarriage. Moll showed that in the majority of abortions the fetus is malformed. He states further, that malformations usually develop very early in embryonic life, often before the tissues involved can be recognized.

The case which I wish to report is that of a congenital absence of the left tube and ovary and a malformation of the left round ligament. Case No. 6983 Kewanee Public Hospital. The patient is a young married woman, twenty-one years of age, white, and a housewife.

Present Illness. Was feeling well until after the noon meal, December 27, when she developed a severe pain in her lower abdomen which finally located itself in the lower right abdomen. It was a nauseating pain. It gradually grew worse, she was unable to sleep and she called a doctor in the morning of the 28th. She was unable to keep food on her stomach and could not drink any quantity of liquids without becoming nauseated. She was not constipated.

Past History. Has always complained of an ache in the lower right abdomen. Her menses began at 15 years of age. Regular twenty-eight day type. The flow was at times profuse, from three to six days duration but did not always notice a difference in amount of menses in successive months. At menstrual time she would always complain of pain in her right side from one week before to one week afterward. Sometimes this pain would radiate to the left side. She has one child, forceps delivery. No miscarriages or abortions. Since her child was born she has had some vaginal discharge and since that time after menstruating she has complained of a burning on urination. She had most of the childhood diseases, smallpox at the age of ten years with complete recovery, typhoid fever at fourteen years with complete recovery.

Family History. Father and mother living and well. Two brothers and six sisters living and well. One brother, a stillbirth, one sister dead at 19 with typhoid fever. One sister was operated on at 23 for cholelithiasis.

Operation and Findings:

Operation performed December 28, 1929, by Dr. C. Paul White.

Assistant, Dr. J. T. Boswell.

Anesthetist, Dr. W. E. Washburn.

Anesthetic, ether.

A right rectus incision was made from a point one inch below the umbilicus downward, four inches in length, going into the abdomen in the usual manner. The appendix was delivered and removed by tying off the mesoappendix, tying the appendix at its base, cutting and inverting the stump with linen purse string suture, tying the mesoappendix over the stump. The right tube was swollen. The uterus was anteflexed. The ovary had several small cysts in it and was about the size of a walnut. The tube was removed in the usual manner. There was a congenital absence of the left tube and ovary and the left round ligament. The left broad ligament appeared only as a thin fold of peritoneum. Careful search was made about the pelvis, groin and the labia for the missing ovary but it could not be found. There was a fold over the fundus of the uterus beneath its peritoneal covering which when dissected was found to be incorporated in the muscle of the uterus and extending from the left upper margin of the fundus over to and becoming a part of the right round ligament. A cigarette drain was placed in the posterior cul-de-sac. The wound was closed, the uterus being fixed to the anterior abdominal wall with a double number two catgut suture tied outside the fascia. Peritoneum closed with number one plain catgut, number two chromic in the fascia and clips in the skin.

Gross and Microscopic Description of Tissues Removed. A stubby indurated appendix with a congested surface. The oviduct shows edema about three times its normal size. The appendix discloses a marked follicular hyperplasia, intense congestion and collection of numerous pus cells in the lining tunics. The mucosa vera is poorly defined and has probably been lost in part

by ulceration. The changes in the appendix are chiefly chronic but an acute phase is regarded as likely because of the large number of pus cells.

Final Diagnosis. Primary: Acute exacerbation of a chronic catarrhal appendicitis. Hydrosalpinx of right tube.

Secondary: Congenital absence of left tube and ovary with malformation of left round ligament.

I reviewed the literature back to 1919 through the cumulative index and also had the services of the Prior Research, the American Medical Association and the American College of Surgeons Research libraries, with the following results:

1. There are few, if any identical cases.

2. There seems to be more often a malformation of the embryologic development of the caudal end of the Mullerian ducts than of the cranial end, which seems obvious as the cranial ends develop independent of one another, while the caudal ends must fuse.

3. There is frequent malformation of corresponding urinary tract, such as absence or malformed kidney and ureter in such cases. In this case, I recently persuaded the patient to return to the hospital for x-ray of the urinary tract. 20 c.c. Neo-Iopax was injected intravenously and a good outline of both kidney pelvies and ureters was shown.

Nicholas M. De Sanctis[1] of N. Y. states that: "No mention was found in the literature of the occurrence of unilateral absence of the ovary and a homolateral rudimentary tube with a perfectly formed uterus which had normally discharged the function of menstration and procreation."

I wish to call your attention to the fact that the case which I report has a perfectly formed uterus, has menstruated regularly, three to six days duration. She has given birth to an apparently perfectly normal child. The only difference to Dr. Sanctis's case is that there is a complete absence of the tube on the left side.

Nowland (Sidney) in the Medical Journal of Australia, 1929, says that complete rudimentary development of one or both fallopian tubes with a well developed uterus is exceedingly rare.

Blot has described a case in which there was a complete absence of one tube in a normal uterus and on corresponding side an ovary very much reduced in size.

1. Am. J. Obs. & Gyn., 25: 602-603, 1933.

Leland of Minneapolis, 1929, in reporting an absence of left tube, ovary and broad ligament, says Eismayer collected from the literature in 1923 ten cases of unilateral absence and one of bilateral absence.

Forbes, R. D. of Seattle[2] on "ovarian anomalies," states: "Of all genitourinary anomalies, those of the ovaries are encountered less frequently." He reports three cases of others of congenital absence of tube and ovary.

Houser, H., in Arch. f. Gynak., 94: 856, 1911, reports a unilateral defect of the ovary with a corresponding rudimentary tube and a unilateral rudimentary ovary with a corresponding normal tube. He states—"About 22 cases of unilateral aplasia of the ovary have been reported in the literature. In six of the reported cases no other genital abnormalities were present, in the remaining cases some other genital anomaly was found.

Other cases reported in the literature are:

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In conclusion, I find but seventeen cases reported in the literature of absence of tube and ovary. No two give the same pathological findings.

The condition is rare.

The uterus in such a case is capable of carrying on normal function of menstruation and procreation.

DISCUSSION

Dr. George H. Gardner, Chicago: Dr. White has presented most clearly an extremely interesting and unusual congenital anomaly. He has reviewed the literature thoroughly and finds that his case is unique. He has told us about the pertinent embryology involved. What more is there to say, except to congratulate him on his excellent presentation.

2. Western J. of Surg. 41: 292-299, 1933.

MALIGNANT HYPERTENSION

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Hypertension ranks with tuberculosis, syphilis and cancer as a problem of modern medical science. Its incidence is apparently increasing, and the toll it takes annually in lives is becoming more and more distressing. Its cause, like that of cancer, is entirely unknown. Formerly it was thought that most hypertension was due to nephritis, but now it is known that the majority of cases fall in the class designated primary or essential hypertension. The name hyperpiesia was long ago applied to this group of cases by Sir Clifford Allbutt.

From a large group of hypertensives, we cull a small group presenting excessively high blood pressure, who early in life exhibit little if any kidney damage, reacting less to standardized treatments and relatively soon they terminate fatally.

Recently two such cases have come into my private practice and are the first in my own experience.

History. Traube in 1850, Gull and Sutton in 1870, made worth while contributions to this subject. Jores did farther research work in 1903. In 1914 Volhard and Fahr found that Jores' red granular kidney by no means always corresponded to the clinical picture of genuinely contracted kidney.

The etiology still remains in doubt. Bordley and Baker attempt to explain it on the grounds of sclerosis of the arterioles of the medulla oblongata. Probable a hypersensitive vasomotor system. A vasospastic state.

Other equally celebrated workers feel that the phenomena are due to stimulation of the sympathetic nerve endings by pressor substances in the circulating blood.

The direct effect of this substance on the musculature of the artery or to some more general disturbance of the sympathetic nervous system is a problem that not only is difficult of solution but is also of great importance in the etiology of hypertensive vascular diseases. Again the question arises as to whether or not the hypertrophy of the arteriole is primary or the hypertension primary. The concept of the familial origin of hypertension has its advocates.

Although the term "Malignant Hypertension" is being increasingly used in clinical practice, there is a considerable difference of opinion as to the exact type of cardiovascular diseases to which it should be applied.

Volhard and Fahr prefer to style this as a malignant phase of essential hypertension. They designate those cases of essential hypertension, which are characterized anatomically by the presence of necrosis and endarteritis of the renal arterioles and clinically by acute progressive renal insufficiency because necrosis develops in the kidney of patients with essential hypertension only after the hypertension has been present for a longer or shorter time. They prefer to call this malignant sclerosis. Stern speaks of it as arterio-necrosis. They find that in addition to the arterio-sclerosis and its consequences there were glomeruli lesions interpreted as inflammatory. They farther believed that the advent of renal insufficiency is due to the occurrence of a severe generalized vasoconstriction which cause kidney ischemia.

The term "Malignant Hypertension" is, however, applied with a second meaning. Keith used it to describe "a syndrome in which there was widespread disturbance of the arteriorlar system, retinitis, and a rapidly progressive course with a fatal termination through failure of one or more organs. Death in such cases is usually not due to renal failure."

We prefer to employ the term "Malignant Hypertension" in the broad clinical sense as used by Keith, to re-emphasize the fact that for clinical purposes there is a type of hypertension which produces severe symptoms and runs a rapid course to a fatal termination. "Although this condition does not run a typical nor specific course, there are frequently certain symptoms and findings sufficiently characteristic of this syndrome to make it possible to differentiate early the malignant from the much more benign form of hypertension."

Malignant hypertension occurs in relatively young persons, often in males less than 40 years of age, in contrast to the benign type which is most common above the age of fifty. Patients with benign hypertension frequently look and feel in a fair degree of health until complications ensue, and are able to carry on their daily

occupation with little or no difficulty. It is usually stated that patients suffering from the malignant type are invalided to a greater or lesser extent by their symptoms, lose weight rapidly, and appear really sick. However, a careful consideration of the histories of such patients frequently bring to light minor complaints suggesting the existence of the vascular disease for many years, although from the time the physician is first consulted their symptoms may be markedly incapacitating and relentless in their progression. It occasionally happens that the malignant nature of the hypertension may be recognized while the patients are still symptom free, as at a routine health or insurance examination. Severe anemia is *not* a part of the picture. The arterial blood pressure, particularly the diastolic, in persons with malignant hypertension tends to be high and to remain fixed at such a level in spite of attempts to lower it. A retinitis is one of the most constant and important findings of this condition, although it must be appreciated that this may also occur in the late stages of benign hypertension as well as in glomerulo-nephritis.

Keith described four stages of the retinitis:

1. Hyperemia, mild edema of discs, peripapillary retina and cotton wool exudates.
2. More edema of disc and retina still hyperemia, more cotton wool exudates, few punctate exudates.
3. Edema receding, proliferative pigment seen, punctate exudates in excess of the cotton wool and arranged in star formation, fading hyperemia of discs, sclerosis of retinal arterioles.
4. Pale discs, secondary atrophy replaces the edema, an occasional hemorrhagic area or small punctate exudate may remain, patchy sclerosis of the choroidal arteries.

A definite relationship is not always evident between the severity of the retinitis of malignant hypertension and the degree of impairment of renal function. Severe retinitis may occur with adequate renal function and without retention of urea.

Symptoms. The prodronal symptoms may date back from one month to six years, and more or less insidiously they develop diverse symptoms the more frequent of which is headache, nervousness with oncoming visual disturbances. At times symptoms of brain tumor may be suggested. A history of pre-existing hypertension may be obtained.

Dyspnea on exertion, transient dependent edema, sometimes nocturia with traces of albumin. Uremia is rare. In most instances the kidneys are still able to dilute, to concentrate and to excrete urine. Some idea of the extent of peripheral arteriosclerosis and sclerosis of the arterioles is to be obtained by the appearance of the temporal and retinal arteries and the palpable condition of the radial and brachial arteries. An examination of the capillaries of the nail folds reveals abnormal blood flow, contraction and tortuosity.

Extreme grades of cardiac enlargement are unusual, although accentuation of the second aortic sound and a systolic murmur at the base are the more usual auscultatory findings. The cardiac rhythm ofttimes may not be disturbed. The electrocardiogram often reveals failing myocardium. Evidence indicated that syphilis is not an important factor etiologically. Serious uncontrollable hypertension may develop primarily in persons whose cardiac vascular systems had previously suffered from hypertension and general diffuse arteriosclerosis.

The most important and constant feature of these cases is the extreme diffuseness of the lesion, not a single organ or tissue escapes and even the vessels of the gastrointestinal tract and the skeletal muscles are equally severely involved. Sometimes the kidney, the heart or the brain is the more severely injured. The kidneys often show severe vascular damage to the small arteries and arterioles, while the capillaries most times escape.

Owing to the diffuse vascular changes in this disease the abnormal symptoms will of necessity be varied and these may or may not be typical of any characteristic syndrome associated with the disease of a single organ.

Prognosis. Of necessity the prognosis must be guarded. True malignant hypertension leads to a fatal termination, variously estimated to be from a few weeks to forty-four months.

Treatment. In dealing with hypertensives, prophylaxis consists of the prevention of blood pressure consciousness. Treatment at best is most unsatisfactory. Systematized mental and physical rest, regulation of habits, work and diet, avoidance of all excesses, with some mild sedative hynotic constitutes in a word our standard treatment. Ayman believes the proper treatment is still unknown and that psychology plays the big role in any prescribed treatment.

The nitrites, the sulphocyanates, bromides and

luminal constitute our medical armamentarium.

Yater, Coe and Rodis have attempted to reduce the irritability of the vasomotor center by the application of x-ray therapy to the medulla oblongata. The British, through Cyriax in 1917, report some good results through mobilization of the spinal column; Adson and Brown of the Mayo clinic, by section of the anterior spinal nerve roots of the sixth thoracic to second lumbar. In 1925 Roundtree and Adson reported a malignant hypertension treated by bilateral sympathectomy, lumbar ganglionectomy and trunk resection including second, third and fourth lumbar sympathetic ganglions and their intervening trunks, The outcome was not justifiable. Decourcy in August, 1934, resorted to bilateral subtotal adrenalectomy, believing that the excessive production of adrenalin may account for the hypertension.

Internists at Mount Sinai Hospital report a case of malignant hypertension in a boy eight and one-half years of age.

Hutchinson and Moncrieff observed a boy eight and one-half years of age with B. P. 210-150 and necropsy shows normal kidneys.

Volhard and Fahr's cases were seldom if ever found before the third and fourth decades.

By some it is believed to occur more often in the professional than the non-professional individual; in the poorer class Jew rather than the Gentile.

REPORT OF CASES

Case 1. G. W., came under my observation on July 30, 1934. Well developed Negro male, stock yard employe, 24 years of age, B. P. 180-140, weight 149 pounds.

Chief complaint: General weakness one month. Loss of appetite one month. Loss of 33 pounds in weight in one month. Dyspnea and morning nausea two weeks.

On my second and final attendance an additional loss of six pounds in weight. B. P. 220-160. Family history irrelevant except that mother had died early with heart disease.

Past history: Diseases of childhood. Tonsillitis. Influenza 10 years ago, last illness. No venereal infection. No operations.

Physical:

Eye: Moderate size veins—no nixing. Some hyperemia of discs. Rales at lung bases. Enlarged heart to left. Accentuation second aortic.

Diagnosis: Malignant Hypertension with failure of left ventricle. Seven days later he entered Cook County Hospital (case 1,451,183).

There he gave a history of: Dyspnea two weeks. Cough four days. Ankle edema four days. Blood streaked sputum four days. Nocturia for one month. Loss of 40 pounds in weight. Had had no physical examination for insurance. G. I. negative except for nausea and loss of appetite. The liver edge was four fingers below R. C. M., No ascites. Pulmonary edema, and ankle edema.

Respiratory: Cough, expectoration, blood tinged sputum.

G. U.: Polyuria nocturia frequency.

Nervous—negative.

The use of alcohol and tobacco in extreme moderation.

Temperature 99. Pulse 116. Respiration 30. B. P. 210-140.

Laboratory—urine: Four plus albumin. Acid reaction. Clumps of red blood cells. Granular and cellular casts. Blood Wassermann negative.

Impression: Malignant nephrosclerosis. Pericarditis.

Medication: 10 c.c. ampoule of 10% magnesium sulphate solution, intravenously. Hot flash reaction prevented more being used. Morphine and digitalis. Came to a drowsy and stuporous death two days after admission. No autopsy obtained.

First seen July 30—died 12 days later having complained for only one month prior but continued to work.

Case 2. T. W. 28 years old, brother of the above named. Well developed colored male, also employed at stock yards. Came under my observation Sept. 21, 1934. B. P. 200-160.

Chief complaint: Dyspnea with cough three months. Bloody expectoration, orthopnea, insomnia, three days. Nocturia, frontal headache, one month.

Lost 24 pounds in three months.

Family: The significant: Mother early with heart disease; brother, the previous case reported at 24 years of age, with ? malignant hypertension, who had died only seven weeks prior.

Past history: Children's diseases. Tonsillitis. Influenza. Neisserian infection. No sicknesses since 11 years of age. No complaints until now, in the last three months. Still working.

Physical examination: Revealed weight loss. Hypertensive left ventricular failure. Liver edge one finger breadth below R. C. M. tender. No edema of ankles. Undilated pupils—showed engorged slight tortuous blood vessels. Urinalysis, four plus albumin, acid, specific gravity 1020. Blood Wassermann, four plus.

Impression: Malignant hypertension. Left ventricular failure. ? Latent lues.

Digitalis having dramatically relieved his breathlessness; the patient died 13 days later with excruciating headache and blindness. An autopsy was not granted.

Summary: Both Negroes. (Non-Jewish descent.) Both married. Ages, 24 and 28 years. Brothers. Laborers, non-intelligentia, even temperaments, moderate social status. Length of complaint, 1 month—3 months. Weight loss, 24 pounds—40 pounds. B. P. identical, 200-160. Last sickness, influenza, 10-11 years prior. Length of medical attention, 11-12 days. Family opposed to autopsy.

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THE PRINCIPLES OF EXCRETORY UROGRAPHY IN UROLOGICAL DIAGNOSIS

Norris J. Heckel, M. D.

CHICAGO

A prominent advancement that has occurred in the progress of urology in the last few years has been the discovery and successful clinical application of intravenous or, more properly, excretory urography.

Urologists have long recognized the need for a different method from that of retrograde pyelography for visualization of the urinary system. They were particularly desirous to develop a procedure which would give a better conception of the physiology and physio-pathology of diseases in the urinary tract, and at the same time eliminate the necessity for the catheterization of the ureters.

As early as 1905, Voelcher and VonLichtenberg attempted to obtain excretory pyelograms by intravenous injections of colloidal solutions of heavy metals. These solutions, however, proved too toxic and the work was discontinued. From 1905 until 1923, little work of scientific or experimental interest was done in this field. In the early part of 1923, Roundtree and his collaborators reported their results from the intravenous use of sodium iodide. The pyelograms were not reliable, the visualization of the urinary tract was poor, and for this reason the method was not extensively used. Roseno of Germany, in 1929, achieved some clinical results from intravenous injections of an iodide-urea compound, but the product was not well tolerated and produced, in some cases, marked reactions.

During the same year, VonLichtenberg and Swick, in Berlin, obtained some successful pyelograms from the intravenous injections of uroselectan prepared by the chemists, Binz and Rath. This solution met all the requirements for excretory urography; it was well tolerated, produced only mild or practically no reactions and gave good visualization of the urinary system. Since the discovery of uroselectan, other similar chemical compounds have been developed and are used with even better clinical success.

One of the substances which has a very wide clinical application is diodrast or neoskiodan. This substance is a stable, organic iodide preparation put up in 20 c.c. sterile ampoules ready for use, and it has a decided advantage over substances formerly employed because the same results are obtained with only about half of the amount of solution.

More recently Swick has reported his observations from the use of a substance which is given orally. This preparation is on the market and although our experience with it has been very limited, so far it has not proven so successful. However, more experience and further development of this solution may demonstrate a more successful clinical application.

The Technique of excretory urography is variable with different clinicians. The following method, with slight variation, is the one which we have used and found to be very satisfactory.

The patient is prepared the day before by the administration of a laxative, followed by an enema in the morning and evacuation of the bowels. No breakfast is given, but the patient may have the normal amount of fluids. Some authors have advised the restriction of fluids for 10 to 12 hours before the films are taken, in the belief that they obtain a better concentration of the dye in the urinary system, but we have not found this to be necessarily true. Lately, we have dispensed with the above technique and injected the patient without any preparation whatsoever. The results are as good, and many times better than when a preparation was done. A plain x-ray of the genitourinary tract is taken and looked at before the injection is made.

If gas is present to any large degree it is in

Read before the Illinois State Medical Society Meeting, Section on Radiology, May 22, 1935, Rockford, Illinois.

many instances a waste of time and money to go ahead with the pyelograms.

The technique for the injection is the same as for any intravenous medication.† The solution is warmed to body temperature and given slowly in the cubital vein at the elbow. In small children, where it is difficult to find the veins of the arm, the superficial veins of the neck can be used. We have never had any reactions such as cramps in the arm or vasomotor collapse from the use of this method.

The first film is taken 5 minutes after the injection and the second usually 15 minutes after the first, and the third from 30 to 40 minutes after the second. In cases where stasis is suspected, such as hydronephrosis from whatever cause, or where kidney function is delayed, the third film can be taken from two to four hours after the second. Many times when the first two pyelograms reveal poor visualization, the film taken later gives very good urograms. It is also our practice to take one roentgen film in a 50° upright position and by so doing we have many times discovered a nephroptosis which otherwise would have gone undiagnosed. In selected cases, when indicated, lateral pictures are made.

Compression Devices in Excretory Urography. In our technique, such devices are used only after physiological information is obtained and when it is more desirable to detect anatomical changes than physiological alterations. In other words, we do not advocate the routine use of compression devices for the obvious reason that the foundation of excretory urography is based on *physiological principles,* and any interference with these principles from devices of any sort may give the wrong interpretation of the urogram.

In the earlier period of the development of excretory urography, many clinicians regarded this method as a rival of instrumental or retrograde pyelography. Such an opinion is most unfortunate; it would be difficult to determine the relative merits of the two methods because their principles are entirely different. A more logical viewpoint, it seems to us, would be to consider excretory urography as an adjunct to the instrumental pyelography to be used when it is desired to obtain more information regarding the interpretation and understanding of urinary tract pathology.

This new method not only gives us an additional armamentarium to be used in urological examinations, but also has developed new conceptions of the physiology and pathology in disturbances of the urinary system. Furthermore, it has given us new ideas in the treatment of these diseases of the urinary tract. Many of the false interpretations that were earlier made in excretory urography were due to erroneous conclusions based on the inability to interpret these physiological disturbances; an attempt was made to construe anatomical changes in terms of physiological alterations. Likewise, some investigators claim they have observed a failure of the normal kidney to eliminate the solution. It is true that many times normal kidneys reveal poor visualization. This, however, is not due to the failure of the kidney to eliminate the substance, but is caused by a hypertonicity or hyperactivity of the kidney, or the film is taken during a systolic phase. If a normal kidney would fail to eliminate a substance which has a specificity for that organ at one time and not at another, the fundamental principles of physiology would be upset. Since, therefore, these various substances have a specificity for the kidney, *another very important use of excretory urography is the evaluation of kidney function.*

Recently Herbst and Baumrucker, in their investigations of kidney function tests from excretory urography, have developed and reported a technique whereby an accurate estimate, said to be within 2% of the phenolsulphonephthalein test, can be obtained. When it is not desired to obtain such accurate information, a relative degree of information on kidney function can be obtained from the roentgen film.

Indications for the use of excretory urography is a subject which can be disposed of in a few words, viz: The use of intravenous urography is indicated in any case in which the visualization of the urinary tract is desired. This is true in cases of children as well as adults. We have used it in children as young as eight months, and also in women shortly before delivery, without any deleterious results.

In cases where a differential diagnosis of the diseases of the urinary tract and adjacent structures is doubtful or very difficult, excretory urog-

raphy has become a valuable aid. For instance, in any acute abdominal lesion which may simulate a renal colic, such as appendicitis, gall-bladder disease, or in the diagnosis of traumatic lesions of the urinary system, such as rupture of the kidney or of the bladder, extravasation of the urine, injuries to the ureters, etc., urography is a timely aid. Previously in these diseases, it was difficult and many times impossible to make a thorough urological examination.

Contraindications: Excretory urography, according to many authors is contraindicated in such diseases as thyrotoxicosis, active pulmonary tuberculosis, hepatic insufficiency, hypertension, etc. We have used this method in all of these diseases and in some of them many times, without harmful or disturbing results. However, in cases of vegetative or ulcerative endocarditis and various other cardiac lesions, such as angina pectoris, coronary disease, etc., excretory urography is contraindicated. It is obvious that in frank cases of renal insufficiency, from whatever cause, the concentration of the dye will not be sufficient to visualize the urinary tract, therefore the use of excretory urography in such cases is not justified.

Perhaps a better conception of its application can be had from the following slides which I should like to discuss with you.

55 East Washington Street.

DISCUSSION

Dr. Robert A. Arens, Chicago: Almost every time the question of intravenous urography comes up, we hear this discussion as to the relative merits of the two methods of examination. Personally, I see no room for argument as to the value of excretion urography, nor do I have any doubt as to the value of retrograde pyelography. After all, what difference does it make as to the method, as long as the type of examination gives you the information you want? Whether it be by the stethoscope, auscultation, whether it be by any one single method that makes that diagnosis, the method itself should not be mitigated against.

At Michael Reese Hospital, we work with the urologist, but in spite of this we make mistakes. But, after all, we are not infallible, but by cold experience we did learn the value of excretion urography. The proof of the pudding is, I believe, that practically every man in this room, in preference to having some shadowgraph catheters passed up his ureters, would prefer the intravenous route first. If that is the case, and if excretion urography makes a satisfactory diagnosis, why should we go further? I do not recommend that as the only thing that should be done. But surely if it makes the diagnosis, and shows as clearly as the slides show, I do not believe we can doubt its value.

On the other hand, retrograde pyelography has its place. As a matter of fact, urologists today who have used both methods are leaning more and more to excretion urography and less and less toward the retrograde method, but they supplement where occasion demands.

If a cholecystography makes a diagnosis of gall stones, if the method brings out the stone in the form of radiolucent stones, you do not need anything else. History or no history, the stones are there. I feel the same about excretion urography.

ACUTE ABDOMINAL PAIN IN JUVENILE DIABETES MELLITUS

Alvah L. Newcomb, M. D.

CHICAGO

The importance of the differentiation of the acute abdominal pain of children due to diabetic ketosis from acute appendicitis complicating diabetes has been inadequately stressed. The onset of ketosis is usually gradual with headache, anorexia, vague abdominal pains, nausea and vomiting, lassitude and deep breathing. The abdominal pain is usually diffuse, the vomiting persistent, and most often precedes the pain. In appendicitis, on the other hand, a history of definite onset and subsequent localization of pain and tenderness with muscle spasm developing is usual. Nausea and vomiting often with moderate fever and leucocytosis are other frequent symptoms.

The difficulties of the diagnosis of appendicitis in the presence of ketosis has been emphasized by McKittrick.[1] Spaeth[2] has recently reported a patient recovered from diabetic ketosis who had abdominal symptoms with negative findings at operation.

Among 70 children with diabetes mellitus, we have seen two puzzling cases of abdominal pain evidently due to ketosis and four cases of acute appendicitis, one with an accompanying ketosis and one case of suspected appendicitis with a fecolith. (Chart 1). The two cases of abdominal pain due to ketosis were characterized by persistent vomiting after an apparent food indiscretion, distended abdomen, and generalized tenderness with a glycosuria and definite ketosis. A summary of the two cases of abdominal pain due to ketosis follows:

E. H., a 12½ year old girl with a history of diabetes of five years standing was seen in the home, July 1, 1932. The child was under the supervision of a practi-

From The Children's Memorial Hospital and Northwestern University Medical School.

cal nurse while the mother was having a two weeks' vacation. The care was good for the first week and less exact during the second week. The day preceding the illness, the girl had gone bathing, then to a ball game, and finally to a picnic where she had eaten potato salad. On reaching home she began to vomit and complained of fatigue and drowsiness, then abdominal pain. She vomited throughout the night. The following morning there was a slight odor of acetone to the breath and sugar and diacetic acid was found in the first urine specimen about 8:00 A. M. There was some abdominal distention with generalized tenderness but no muscle rigidity. As the vomiting persisted, the child was admitted to the hospital. The blood sugar was 350 mgs. per 100 cc. of blood, and the CO_2 combining power of the plasma was 18 vols. The temperature was 100°. She recovered promptly with the subcutaneous administration of insulin, glucose, and normal saline solution.

D. B., a 4¼ year old girl, was seen for the first time in the Out-Patient Department of the Children's Memorial Hospital, June 10, 1934, where the following history was elicited: abdominal pain for 11 hours, vomiting for 9 hours, deep, heavy breathing for 7 hours, fever for 6 hours, and backache for 2 hours. She had eaten canned salmon and pickled pigs' feet four hours before the onset of these symptoms. The patient was semi-comatose, the pupils widely dilated, there was an anxious facial expression and a markedly distended abdomen, especially the lower half, with tenderness a little more to the left. The superficial veins of the abdomen were engorged. The temperature was 100°, and the total leucocyte count was 34,750. Tentative diagnoses of acidosis due to food poisoning, peritonitis, or early pneumonia were considered. A urine heavily loaded with sugar and acetone bodies established the diagnosis of diabetic ketosis which was substantiated by the disappearance of abdominal symptoms, the glycosuria, and the ketonuria by the subcutaneous administration of fluids and insulin.

In the four cases of appendicitis, fever was always present, the pain was definitely localized at the right lower quadrant, vomiting was present but usually not so persistent as in the cases of ketosis, and tenderness and rigidity in the right lower quadrant were always present. A summary of the cases follows:

O. J., an 11-year old girl with a histosy of diabetes of 20 months' duration was sent to the Durand Contagious Disease Hospital because of a diagnosis of scarlet fever, December 29, 1930.[3] Scarlet fever streptococcus antitoxin was administered therapeutically and convalescence was uneventful until the twelfth day of the scarlet fever when there was a generalized uriticarial reaction with abdominal pain. Both symptoms at first were thought to be allergic manifestations. The temperature rose to 102.4°, and the leucocyte count was 25,000. The pain became more intense and the abdomen rigid—especially over the right lower quadrant. At operation, a ruptured appendix was removed. Recovery was slow and a purulent discharge from the incision persisted for several weeks. Prior to the scarlet fever and appendectomy, 20 units of insulin had been adequate while after recovery at least 40 units were necessary to prevent glycosuria. The child subsequently became a total diabetic (partially because of improper diet due to economic difficulties during the ensuing year). The insulin requirement is now over 100 units of insulin daily.

B. B., a 13½ year old girl with a history of diabetes for eighteen months, was seen in the home, January 27, 1934, with a complaint of vomiting for three days, fever 102°, and right sided abdominal pain. Marked tenderness and rigidity were present over the lower right quadrant. The urine contained a trace of glucose but no diacetic acid. The blood sugar was 125 mgs. per 100 cc. of blood and the CO_2 combining power of the plasma was 45 vols. The total leucocyte count was 19,900. A retrocecal appendix, gangrenous at the tip, was removed at operation. There was some drainage for several weeks. Tolerance for glucose was definitely depressed and has remained so.

S. Z., a 9½ year old boy with a history of diabetes for four years, was seen in the home, August 14, 1934. Diarrhea had been present for about three days, vomiting for about twelve hours, when the child complained of vague epigastric pain. An hour before examination the child had a sudden attack of severe abdominal pain. The temperature was 102°, the leucocytes 12,000. The urine contained a trace of glucose and diacetic acid. Marked tenderness and rigidity were present over the whole abdomen and especially over the right lower quadrant. At operation a gangrenous appendix, ruptured near the base, was removed. Recovery was uneventful except for discharge from the wound for about five weeks. Tolerance for glucose is gradually returning to the preoperative level.

E. K., an 18 year old boy with a history of diabetes for seven years, was seen in the home, August 14, 1934, because of nausea and vomiting, intense abdominal pain of four hours standing and fever of 101°. The fever persisted and the pain localized in the right lower quadrant the following day. The urine contained only a trace of sugar and diacetic acid. The total leucocyte count was 35,000 on admission, 21,400 the following day. Operation revealed a slightly injected appendix with a fecolith. Recovery was prompt and uneventful.

Medical management consisted of the subcutaneous administration of 10% glucose in normal saline solution in order to restore and maintain the water balance, supply glucose, and to restore the depleted chlorides. Insulin was administered at six hour intervals. Urinalysis for glucose and diacetic acid were made before each dose of insulin.

Comment. The cause of the abdominal pain in ketosis may be due to different factors in each case. For instance, McKittrick[1] has noted an enormously dilated stomach in some cases with hyperperistalsis. He further felt that the large fatty liver might cause some upper abdominal discomfort. However, since the onset

No.	Abdominal Pain	Vomiting	Location of Tenderness	Abdominal Rigidity	Leucocytosis	Fever	Ketosis	Diagnosis
1.	Not Localized	Persistent	Generalized	0	Not Determined	100°	++++	Diabetic Ketosis
2.	Not Localized	Persistent	Generalized Little More to Left	0	34,750	100.2°	+++	Diabetic Ketosis
1.	About Umbilicus	Persistent	R. L. Q.	R. L. Q.	16,350	102°	+	Acute Appendicitis and Diabetic Ketosis
2.	Generalized Then R. L. Q.	Recurrent For 2 Days	R. L. Q.	R. L. Q.	25,000	102.4°	Slight	Acute Appendicitis
3.	Lower Abdomen		R. L. Q.	R. L. Q.	12,000	102°	Slight	Acute Appendicitis
4.	Right Side of Abdomen	Recurrent For 3 Days	R. L. Q.	R. L. Q.	19,900	102°	0	Acute Appendicitis
5.	Right Side of Abdomen—Severe	4 or 5 Times In 2 Days	R. L. Q.	R. L. Q.	35,000	101°	Slight	Subacute Appendicitis with Fecolith

of coma is rapid in children, the large liver is infrequently seen. Schöndube[4] has suggested that the abdominal symptoms are due to dehydration.

The possibility of an additional factor has been noted by Carlson.[5] In animal experiments, he found that the injection of diabetic blood produced hyperperistalsis of the gastrointestinal tract, while acetone in Ringer's solution caused inhibition of the hunger contractions. Luckhardt,[6] working with depancreatectomized dogs, showed that the gastric tonus and hunger contractions were more continuous and vigorous than in the normal animal or in the same animal before pancreatectomy. That either the ketosis or the dehydration is an important factor in the production of pain may be demonstrated by the rapid disappearance of abdominal pain in a nine-year-old boy. H. L. was admitted to the hospital with a history of diabetes for five months, drowsiness for four days, and abdominal pain for two days. The blood sugar was 317 mgs. per 100 cc. of blood and the CO_2 combining power of the blood was 10 vols. One hour after the intravenous administration of 60 units of insulin and 500 cc. of an isotonic sodium lactate solution, the pain had subsided. Whether relief of dehydration or neutralization of some chemical caused the disappearance of the abdominal symptoms, it seems unlikely that insulin alone could have had such profound effect in the short period of time.

SUMMARY

Two cases of abdominal pain due to ketosis and four cases of acute appendicitis, one with ketosis and one suspected appendicitis with fecolith are reported in 70 diabetic children.

In this relatively small series of cases, acute appendicitis is to be differentiated from diabetic ketosis with abdominal pain mainly by a history of localized pain, associated with localized rigidity and tenderness, and moderate fever. When the history of pain is less definite and there is more vomiting and drowsiness with generalized tenderness, diabetic ketosis should be ruled out by proper diabetic therapy.

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Read before the Chicago Pediatric Society, December 18. 1934.

CODEINE DERMATITIS

BERNARD SKORODIN, B. S., M. D.

MANTENO, ILL.

Dermatitis due to ingestion of codeine is not a common manifestation. The leading textbooks do not list codeine among the drugs causing dermatitis medicamentosa. Of the opium group as a causative agent of drug eruptions, only morphine is listed by R. L. Sutton.[1] J. M. H. MacLeod[2] and H. W. Stelwagon[3] mention morphine and opium, W. A. Pusey[4] lists opium only. O. S. Ormsby[5] and J. N. Hyde with F. H. Montgomery[6] refer to opium and its alkaloids, and J. H. Sequiera[7] mentions opium, morphine and pantopon.

A reference to codeine dermatitis is made by F. C. Knowles[8]: "Codeine has caused a widespread erythema."

Max Scheer and Harry Keil[9] collected a series of six cases of codeine allergy from the literature and added one case of their own.

Although no allergy tests (scratch and patch tests, Prausnitz-Küstner test) were made in the case that came under my observation, there is

no doubt, however, that the clinical course has definitely proven it to be that of codeine dermatitis.

D. E., 23 years old, a student nurse at Anna State Hospital, entered the hospital ward November 8, 1932, with the complaint of pain in the left ear and neck of three days standing. Examination revealed inflammation of the lining of the entire external auditory canal with redness of the tympanic membrane. There was no evidence of involvement of the middle ear. There was vague tenderness over the left mastoid region and also slight torticollis. The temperature was elevated—100.4° F. The diagnosis of acute otitis externa with myringitis was made and local treatment (heat and phenol-glycerine) was instituted.

At 8 P. M. the patient was given one grain of phenobarbital and one grain of codeine because she continued to complain of intense earache. At 9:30 P. M. she suddenly developed severe generalized pruritus which was soon followed by an erythematous eruption of a follicular arrangement. Coalescence proceeded rapidly with the result that the whole body was covered with a scarlatiniform rash. The patient was given a colloid bath, but as there was no relief from the itching, ¼ grain of morphine was given hypodermically to secure sleep, although it was realized that the morphine might aggravate the itching. Fortunately, a good night's sleep followed, and next morning it was found that the rash and pruritus had entirely disappeared.

The patient was questioned as to a history of food allergy with a view of finding a possible causative agent for the dermatitis in the food she was given on the hospital ward. But the history was entirely negative in this respect. It was then thought that the rash was caused by the phenobarbital, and, accordingly, the next evening when the patient complained of sleeplessness, the phenobarbital was omitted and one grain of codeine was given at 9 P. M. One and one-half hour later itching and dermatitis appeared with the same intensity and in the same form as on the preceding night.

A colloid bath and morphine hypodermically had to be administered again to induce sleep. The next morning the dermatitis was again found to have gone without leaving any residue.

The patient spent five more days on the hospital ward, during which time the ear infection gradually subsided. No more hynotics were needed. There was no recurrence of itching or dermatitis.

A completely negative history of allergic manifestations in the past and the prompt occurrence of a dermatitis after the ingestion of codeine on two successive occasions speak definitely for the presence of allergic dermatitis due to codeine in my patient.

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AN EXPERIMENTAL STUDY ON THE PYLORIC MECHANISM

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The function of the pylorus has been the subject of much argument among physiologists. The early investigators believed that the stomach was intermittently divided into two parts by a middle gastric sphincter. The lower part would contract and push food into the bowel. Later on Cannon, and his co-workers, by observing the gastric digestion, by means of x-rays, could not find any middle gastric sphincter, but only peristalsis which ran from the cardias to the pylorus. Cannon thought the pyloric opening was regulated by the acid content of the stomach and stated that acid on the gastric side of the pylorus would open the sphincter and acid on the duodenum would close it. This hypothesis, however, did not explain the emptying of fats, fluids, and gases.

One can obtain a good deal of information by studying the effect of different foods on the emptying time of the stomach. My data were obtained by feeding three cats 25 cc. of each material mixed with barium. The emptying was observed at frequent intervals with the fluoroscope. Water emptied in one hour; the physiologic solutions of sugar and salt emptied a little faster, in about three-quarters of an hour. Acids, such as hydrochloric, and alkalis, such as sodium bicarbonate, did not seem to affect much the emptying time of the stomach, except when given in high concentration. However, the experiments show that concentrated sugar and salt solutions, and vegetable oils make the emptying of the stomach last a long time indeed. These results confirm those of earlier workers.

In order to explain the delayed emptying time of oils and concentrated salt and sugar solutions, earlier investigators have assumed that these substances would make the pylorus contract and

Read before the Section on Radiology, Illinois State Medical Society, at Rockford, May 22, 1935.

keep it closed. In order to test this hypothesis, in two cats the pylorus was functionally impaired by a pyloroplasty, and in two more a gastroenterostomy was performed together with ligation of the sphincter. Hardly any difference could be seen between the emptying times recorded on these animals and those observed in normal cats. We are forced to conclude that the pylorus is not responsible for the delayed emptying of oils, and concentrated solutions of salt and sugar.

The failures of most of the investigators to explain the pyloric mechanism were probably due to the methods used. The observation of the stomach from the outside, with the animal in warm Ringer bath under ether anesthesia, discloses the peristaltic phenomenon, but does not give any information about the passage of food. Balloons inserted in the gastric cavity are subject to the same objections. The roentgen ray examination, on the other hand, shows us the waves running over the gastric content, but does not give any information about the contraction of the visceral walls themselves, and does not show the pylorus or the duodenum when they are empty of barium.

At the suggestion of Dr. W. C. Alvarez, I developed a method by which the gastric walls themselves could be visualized to the roentgen rays by inserting two series of small lead shot under the serosa along the curvatures. At the same time, barium meal could be given so the emptying of food could be observed. Twenty cats were operated on with this method, and observations taken a month after complete healing of the wound. The method did not seem to affect the digestion. In fifteen other animals, shot were also placed on the duodenum; however, only two of those last animals could be used because the shot in the duodenum fell into a different plane from the shot in the stomach, so that they did not give us a good representation of the duodenum walls. The roentgen cinematographic machine devised by Dr. Alvarez allowed the taking of films of one hundred pictures each at the rate of four pictures per second, in such a way that very little of the visceral movements could be lost.

I was able to observe: 1. That peristalsis does not stop before reaching the pyloric sphincter, but that the pylorus contracts and relaxes regularly with each peristaltic wave at a rate of about five times every minute. 2. That the waves in the duodenum are much more irregular, occurring fifteen to twenty times per minute. 3. The opening of the pylorus is not enough to secure the passage of food from the stomach into the duodenum. 4. Food leaves the stomach only when both the pylorus and the duodenum happen to relax at the same time.

DISCUSSION

Dr. Fred H. Decker, Peoria: I feel very incompetent to discuss a paper in regard to the pyloric mechanism. However, one can but marvel at the ingenuity and patience required to bring about the experiments which you just heard. It would be interesting if Dr. Gianturco would tell us how many cats he actually used in carrying out these experiments, whether it was a sufficient number to be of great value. The fact that they used lead shots along the serosa makes these experiments more valuable. Sometime ago I attended a radiologic meeting where Louis Gregory Cole was in charge. You may remember his penchant for great detail and he stressed particularly the fact that when we are looking at a stomach as does a radiologist in his laboratory, we are actually seeing a cast of the inside of the stomach and actually see little of the action of the wall itself. The method which Dr. Gianturco has used is certainly getting around at least one part of that question.

I think most of us are accustomed to thinking, when we expect to find an ulcer, that in the large majority of instances there is a hyperacidity. Under those circumstances, we usually find the pylorus is very difficult to force fluid through. On the other hand, in malignant stomachs we usually find the gastric acid low. Quite often in those cases one observes that the stomach empties very readily. The old Cannon theory is not held up by those facts, although I believe he got around it by stating in those instances we are dealing with a pathologic stomach and not a normal pyloric mechanism.

As I listened to Dr. Gianturco, I wondered how valuable our own observations in the laboratory were. When you are dealing with a patient under great stress, who is worrying about the outcome of the examination, who is brought into strange, rather mysterious surroundings and who is generally ill, we can hardly compare those findings with the action of the pylorus under more normal circumstances.

There are certain questions in my mind as far as Dr. Gianturco's conclusions are concerned. If the pylorus is practically a non-functioning portion of the gastric intestinal tract, why do we have the distinct enlargement or hypertrophy of that circular muscle in that region? If it depends on relaxation of both the pylorus and duodenum, what mechanism is there that produces the relaxation at this particular time, so that, as he says, we will get some emptying about five times per minute.

Dr. Gianturco (closing the discussion): In regard to the first question as to how many animals were used, I must say the complete study could be made with two.

In twenty animals, shot were placed on the stomach walls only and the pyloric movement was observed. In all of them, the pylorus behaved exactly like a part of the stomach. The placing of the shot on the stomach and also on the duodenum was not always successful because the cat has a somewhat tortuous duodenum, and out of fifteen animals in which this was tried, only two could be used. In the other animals the shot in the duodenum did not fall in the same plane as the shot in the stomach.

In regard to the second question as to why the food passes from the stomach into the duodenum only at certain times, I must repeat that this happens only when both pylorus and duodenum are relaxed at the same time.

Dr. Perley: Would that be about the same in the cat as in the human stomach?

Dr. Gianturco: I think so.

Dr. Decker: What about the development of a hypertrophic pyloric muscle?

Dr. Gianturco: We used to think of the pyloric muscle in the human as of an autonomous sphincter, a separate anatomical entity, but recent studies made at the Mayo Clinic have failed to show any difference except thickness between the pyloric muscle and the rest of the stomach. If you examine a human stomach you will find only a very gradual increase in the thickness of the gastric walls toward the pylorus; this is very readily understood because the stomach does most of the work in the pyloric pars. As far as the pathological occurrence of hypertrophy of the pyloric muscle, very few of those cases come to a section, and I do not have first hand information about it.

CONTRIBUTION TO WHOOPING COUGH IMMUNIZATION

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PEORIA, ILLINOIS

The ravages of whooping cough as seen in children, and especially in infants and children under three years of age are familiar to you all. It is during these three years that it does its greatest damage. During the past few years medical literature has stressed the importance of whooping cough as a deadly childhood epidemic disease. It is an expensive epidemic disease among children when we consider the physical suffering, loss of time in school, damage to the respiratory, cardiac or nervous systems and the mortality. Prior to the advent of scarlet fever and diphtheria control, the mortality was not so noticeable. Now whooping cough ranks ahead of measles, scarlet fever and diphtheria as a cause of death.

Read before Section on Pediatrics, Eighty-fifth Annual Meeting, Rockford, May 21, 1935.

During 1934 there were reported 15,352 cases of whooping cough in the State of Illinois; 312 deaths were attributed to whooping cough. The rate was 3.89 per 100,000 population. Nearly 8 ont of each 10 deaths occur in children under two years of age.[1] According to studies based on epidemiologic reports of the League of Nations as quoted by Sauer,[2] there were reported 300,000 cases of pertussis in the United States in 1932. The Annual mortality is 6,000 or more. The deaths among infants may reach 15 per cent.

Of course the complications of whooping cough are the responsible factors in producing death. The most common complications are those related to the respiratory system. Whooping cough is ushered in with a catarrhal inflammation of the upper respiratory tract. As the disease progresses this inflammatory process descends down the bronchi and into the bronchioles. In most cases this is as far as it goes and we have a bronchitis. However, the inflammation produced has made the lungs more susceptible to a mixed respiratory infection and therefore a possible ideal beginning for the development of a pneumonia. This is by far the most important complication and the most serious. Parents should be warned of the attendant danger of a complicating pneumonia at the time the diagnosis is made in order that any change in the patients' condition may be reported to the physician early.

The mechanical effects of the paroxysmal coughing frequently causes an emphysema of the loose cutaneous tissues of the face, neck and supraclavicular region. Similar emphysema may occur in the interstitial tissue of the mediastinum, as well as in the lungs.

The bronchial lymph nodes are more or less always enlarged and account for the persistence of the cough for months in many cases.

Effusions in the pleural cavity, and a case of bronchiectasis were reported by Cowie.[3]

Tuberculosis may be activated by whooping cough although some think it has no effect.

Hemorrhages are common. Epistasis is probably the most common in occurrence. Another common form occurring in whooping cough is that seen in the conjunctivae, the sclera becoming entirely red. Petechial hemorrhages of the face and forehead and ecchymoses of the eye-

lids are sometimes seen due to the venous congestion caused by paroxysmal coughing spells. Bleeding from the ears has been noted. Cerebral hemorrhage may occur as a result of venous engorgement due to the explosive type of cough. This may cause hemiplegia. Bleeding into the anterior chamber of the eye may cause blindness.

The paroxysmal coughing spells also cause engorgement of the heart and a congestion of the lungs. A more or less constant engorgement of the right heart during several weeks pertussis may leave some after effects.

Askin and Zimmerman give a report on encephalitis as a complication of whooping cough.[4]

Lazarus and Levine,[5] last year reported a case of blindness due to whooping cough and added a condensed report of 20 other cases from the literature.

Last June, Cowie of Michigan mentioned a case of a boy of three years who lost his ability to speak and had not regained it after two years, although his case was further complicated by a cerebral abscess.

Inguinal and umbilical herniae may be caused by the severe coughing spells and those that already exist are certainly aggravated.

I mention these statistics and draw your attention to the various complications to emphasize the value of prevention of whooping cough. For years we have been using stock vaccine for therapeutic purposes with variable results. Madsen[6] reported on the use of vaccine during an epidemic on the Faroe Islands in 1923-24; 2,094 persons were vaccinated, 627 were not. The majority of both groups developed the disease, but those in the vaccinated group ran a milder course. There were 18 deaths among those of the non-vaccinated group of 627; whereas there were only 5 deaths among the 2,094 individuals receiving the vaccine. He reports that the best results were obtained when the vaccination was completed just before the onset of the disease. In a report of a second epidemic in the islands in 1929, the results were more striking. Out of a total of 1,832 cases vaccinated there was one death, while among 446 non-vaccinated cases there occurred eight deaths. In other words the mortality was 30 times greater in the non-vaccinated group. The vaccine used was prepared from fresh strains of Bordet-Gengou bacilli; the complete dosage totaled twenty-two billion bacteria given in the three injections.

In January, 1933, Dr. Louis Sauer[7] of Evanston gave a preliminary report on immunization against whooping cough. He then reported a series of 291 immunized cases, eight of which were exposed to other members of the same household who had active pertussis, but did not develop the disease. In November that same year, he added 103 cases to that series, increasing the total number of household contacts to 29, all of whom escaped the disease.[8] In a subsequent report[2] last January, the series was increased to 500 cases whose age ranged from six months to four years. Of this total of 500 injected children, 30 were intimately exposed and all escaped whooping cough; 170 of the 500 were accidentally exposed at school or at play and none developed the disease. Thirty-two children used as controls in 25 homes contracted unquestionable pertussis. He has shown that a minimum of three months time should elapse between completion of the injection and exposure to insure prevention of whooping cough.

I wish to add to the work of Doctor Sauer a report on a series of 75 non-immune children who received the injections of vaccine made according to his specifications. The ages ranged from six months to six years. A few were older but most of them were under three years of age. These injections were given between May, 1933 and February of this year. Not one of the injected children has developed whooping cough. Six of these have been intimately exposed; one of them twice. Five of these were under three and one was five years old. We have had considerable whooping cough in our city and I do not know how many possible accidental exposures occurred in this group.

The vaccine used was pertussis vaccine made according to the method of Doctor Sauer and prepared by Lilly or Parke, Davis and Co. It is made from freshly isolated, hemolytic strains of the Bordet-Gengou bacillus, grown on a media containing 20% freshly defibrinated human blood. The growth of 48 hours is scraped off the media and suspended in physiologic saline solution containing 0.5% phenol. After refrigeration for one week the concentrated suspension is diluted to contain 10 billion bacilli per cubic centimeter.

The routine procedure of immunization is as follows: The hypodermic syringe and needles should be sterilized by boiling, not with alcohol. This will insure against chemical deterioration of the vaccine. The first dose consists of one cubic centimeter injected subcutaneously in each arm. The second injection, given a week later, consists of one and one-half cubic centimeters injected in each arm. A week after the second injections, another one and one-half cubic centimeters of the vaccine is given subcutaneously in each arm. Thus a total of eight cubic centimeters containing 80 billion killed pertussis bacilli are given for one complete immunization. Care must be taken not to give the second or third injections in the same area in which the previous injections were given to avoid undue pain.

A slight local reaction almost always occurs, but it is of no serious moment. Usually it is limited to a slight redness and some tenderness. Few cases developed a rise in temperature and this is more likely to occur in the older children than the infants. There was practically always an indurated node present at the site of injection which sometimes persisted for several weeks. In none of these immunizations comprising 450 injections did a local abscess develop.

Summary

Seventy-five non-immune children received injections of pertussis vaccine for immunization.

Six of these children were intimately exposed. One was exposed twice.

It is not known whether others were accidentally exposed.

None of the injected children developed whooping cough.

To insure immunity from whooping cough the injections must be given at least three months prior to exposure.

All infants should be immunized soon after six months of age.

Whooping cough immunization should receive more attention in the future.

Peoria Life Building.

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DISCUSSION

Dr. King Woodward, Rockford: Dr. Sibilsky's very comprehensive report is timely, as I feel that this immunization of whooping cough is one of the problems of immunization of contagious disease. I have not been as fortunate in this field as has Dr. Sibilsky. I recently opened up an area of pressure necrosis after the third injection into an infant's arm. I thought I had given a subcutaneous injection. I had the unfortunate experience of seeing a child five hours after the injection of pertussis vaccine in convulsions for three hours. Why, I do not know. The following morning the child was apparently well and continued to improve. I do not feel that these two experiences I have had will condemn the use of whooping cough vaccine. I do feel that in our discussion with parents we must not be too optimistic and must warn them of bad reactions. Perhaps the essayist can make clear this point for me. What is the proper age to start this immunization? You are perhaps familiar with the work Dr. Sauer has recently done, immunizing the children in the Cradle at Evanston at a very early age. I do not know whether his figures have been reported as to how successful this work is.

Another question I would like to ask is this: Is a baby capable of developing immunity to diphtheria with toxoid injection and at the same time develop an immunity against whooping cough? If so, these two procedures could be given very close together and the average infant at a year could be protected against these two contagious diseases. I have adopted the policy of allowing a few months' time between the two immunizing processes. Perhaps Dr. Sibilsky has had some experience in that line.

The site of injection as he mentioned, is very important, as is also the fact that the injection must be a subcutaneous one.

Dr. S. C. Henn, Chicago: I have been quite interested in immunization from the beginning because we all appreciate that whooping cough is a severe disease and we want to diminish its severity as much as possible. I thought that Dr. Sauer's reports were very enthusiastic. I personally hesitated from beginning my own work right away. I wondered if any one else was going to have results as good. At one time I wrote to the Lilly organization asking if they had reports that were similar to Dr. Sauer's. They wrote that it was not necessary to have any others because his results were successful. That is why I have been interested in the work of Dr. Sibilsky. His report and the reports of others will give us a basis to know whether to immunize or not to immunize. I have personally had no results such as Dr. Woodward spoke of.

There are certain other questions I would like to ask. Why does it take four months to immunize an in-

dividual? Also how nice it would be if we only had some test to tell whether the individual had been immunized or not? These are problems I think that will certainly demand further work. I think it is only continued reports of work such as Dr. Sibilsky has given us that will give us the evidence we want about the immunization of whooping cough.

Dr. Henry E. Irish, Chicago: I might say something in answer to the question of Dr. Henn with respect to skin tests. When I was in Belgium nine years ago there was a man in Brussels who showed us a very interesting series of skin tests which he had done the previous day with an extract of whooping cough baciili. His tests were judged in the various patients he showed us according to the history of whether the child had or did not have pertussis. I asked him through the interpreter if any commercial firm would handle the testing material. He told me that there had been no plan perfected by which the extract could be kept indefinitely. Those skin tests that he showed were quite as definite as any Schick or Dick I have ever seen. I think that some time we will have a preparation that will tell us whether or not a child should be vaccinated against pertussis.

Dr. R. E. Cummings, Chicago: I think the question of accepting only Dr. Sauer's work has been the difficulty we have all been up against. We have all been rather enthusiastic about accepting anything that would cut down the incidence of whooping cough, but how high our immunity would run has been a question. It has been most interesting to me to note that out of quite a number of children that I have immunized I have found three that developed whooping cough. The first one, six weeks after the last injection was thoroughly exposed and contracted whooping cough, the other ones after two months. Fortunately they were mild cases. I question whether I would have diagnosed it if whooping cough had not been present in the building at the time. While I do not feel I know anything about the degree of immunity conferred, I do feel that it modifies the attack of whooping cough and should be given.

The question was brought up as to how much you decrease the immunizing powers of the body by immunizing close together. I do not know, but I have made it a practice for the last year that one month following the third injection of whooping cough vaccine I give toxoid, and recently I schicked forty-seven children and had two positives. That is the only report that I have. I certainly think that whooping cough immunization should be employed even though we know nothing about how long the immunity will last.

Dr. I. M. Levin, Chicago: About two years ago the Lederle Company introduced a pertussis vaccine in which young cultures were subjected to the action of formalin. Detoxification and large dosage with minimal constitutional and local reaction were the ideals sought. The concentration was ten billion organisms per cubic centimeter.

I have employed this vaccine in immunizing 160 children. Inoculations were begun after six months of age, before diphtheria immunization. One-half, one, and one and one-half cubic centimeters were injected in the arms at weekly intervals. There were occasional mild constitutional and local reactions, but no instance of necrosis. I am of the belief that thorough boiling of syringes in distilled water will do away with many of the untoward reactions.

In this series there were two children who developed pertussis, one three weeks and the other six weeks after inoculation. The first child ran a very violent course, the second was only mildly ill.

Dr. M. L. Blatt used the same formalinized vaccine in 150 cases. The dosage was 0.2, 0.4, 0.6, 0.8 and 1.0 cubic centimeters at intervals of one week. In his series no child has developed whooping cough.

Unfortunately there is as yet no means for determining the immunological response of these children. The success of the treatment must still be determined by our clinical experience. The cumulative experience of many together with the splendid basic work of Sauer leaves no doubt in my mind that we are on the right track. The prophylaxis of pertussis must be carried on.

Dr. G. F. Munns, Winnetka: Whooping cough takes many different forms. That is the reason there is great variation in the interpretation of results in the use of vaccine or any other material for prevention or treatment of that disease. There is one thing that has occurred to me in the connection with immunization: If we intend to immunize all children against whooping cough in infancy, at what age should the administration of vaccine be stopped? Do not forget that whooping cough epidemics occur in waves, not every year but every three to five years with endemic cases going on in the meantime. You cannot judge the effects of vaccination over a period of a few years because epidemics do not occur that frequently. Should we attempt to prevent whooping cough during the entire period of childhood and let them have it later when they are in the upper grades of school or college when missing a relatively long term in school means that perhaps they are retarded one year? I believe it may be advisable to stop immunizing after a child is 6 years old as after that period the danger of whooping cough is not so great and having the disease gives them an active permanent immunity.

Dr. John Vonachen, Peoria: In any of these immunizations it is important that we leave the impression with the patient that they are not 100% perfect. Your patients will have the impression that whooping cough vaccine is 100%. This is exaggerated because it has been written up a great deal in lay periodicals. I have had approximately 300 immunizations in private practice, and I have at present two cases which have developed definite whooping cough, one six months, the other eight months following immunization with the Sauer serum. We make a special effort to keep this on the ice at all times. I am unable to account for the failure in these two cases. It is rather humiliating to have this occur particularly if the immunization has been completed months before.

Dr. M. L. Blatt, Chicago: This week a case of measles occurred in one of my wards at the Cook County Hospital in a patient who had measles a year

ago. I have had several cases of scarlet fever recur, one 93 days after the primary infection while still in the contagious hospital. I have seen chickenpox do this, and I have had cases of whooping cough do the same thing.

I think the point Dr. Vonachen makes is extremely important, that we do not over-sell these products. They should be sold but not over-sold. The people should be told that they do protect, that the immunity may last for years, how many we do not know. That is of very great importance if we are not going to be defamed by the next epidemic to which Dr. Munns has directed our attention.

Dr. A. S. Sandler, Chicago: Since the subject of treatment of whooping cough is touched upon in this discussion, I should like to call attention to an article written six months ago about the report of two cases of whooping cough successfully treated with Sauer's vaccine. I read this through carefully and thought if I had any cases of severe whooping cough I would use it. As it happened, about five cases presented themselves in the past six months. These cases were of the severe type with hemorrhages into the eyes and nose, and spasms on an average of one every hour per twenty-four hours. I started out using Sauer's vaccine, 1 c. c. in each arm. The second day I injected 1.5 c. c. in each arm, and continued 1.5 c. c. daily. Within a matter of four or five days the spasms receded to about four in twenty-four hours. This is a matter for future observation.

Dr. N. G. Shaw, Evanston: I wonder if anyone had a similar experience to mine. In the last year and a half I have had opportunity to use Sauer's vaccine in five cases of whooping cough of a week or ten days duration. I gave rather large doses, three or four cubic centimeters every second or third day for about three injections. There was definite improvement after the third injection.

Dr. A. H. Beebe, Stillman Valley: I have recently had an experience in a family in which several of the other children were having whooping cough. One child four days old was given several small doses of vaccine four days apart. There were no bad effects and he did not develop whooping cough. Is that a record?

Dr. Carl Sibilsky, Peoria (closing): I have had no such effects as the Doctor mentioned regarding local abscess formation.

The question was brought up whether we could give the vaccine in one or two doses instead of dividing it. The result of the discussion of this subject at the Academy of Pediatrics meeting last year was to give it in small doses because we are liable to get a sterile abscess from large doses. I had one baby nine months old that was given a series of two injections for three doses and each time the temperature went up to 102 and he had rather severe pain and did not rest well, but was apparently all right within less than twenty-four hours.

Regarding the proper age at which to begin immunization, Sauer's original work called for immunization after six months. Recently he has pushed that age forward to as much as eight months of age. They did immunization on babies at the Cradle in Evanston when the babies were very much younger. While they have some severe reactions they were never serious.

With regard to how soon it should be given after toxoid is given, I do not know. I have never seen a report of any work done on that, though I think that is an important point. I do not know how long it would take to develop antibodies, though we believe a child could develop antibodies to both of them.

Dr. Henn asked the question about the earliest at which a child might develop whooping cough after two injections. In Sauer's original work he had two cases in which whooping cough developed two months after injection. The children had a mild cough but did not whoop and got along very nicely.

Regarding the use of Sauer's vaccine for treatment, I had four cases in which I gave the first injection after the children were exposed and continued with the vaccine after the whooping cough developed. I am convinced that it did have a definite effect. However, using the Krueger denatured vaccine has given me the same result.

Dr. Levin's report is similar to that of Sauer's experience, waiting at least three months before we can say they are quite likely to be immunized.

Dr. Munns asked how long the immunization will last. We do not know. Sauer's first series ran five years. I feel that if we could prevent whooping cough in the infant that we are doing a great service because that is the time that the mortality is high; in other words, a child of six years can conduct himself in a better manner than an infant who lies on his back helpless.

Dr. Vonachen's experience with the two patients who developed whooping cough as late as eight months after giving the vaccine is interesting. I think we have to bear in mind the possibility that we might have a deteriorated vaccine as well as emphasizing the fact that we can over-sell the product. We should continue giving the immunizations to prevent insofar as humanly possible the development of whooping cough.

PSYCHOSIS ASSOCIATED WITH INFECTIOUS DISEASES

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The psychosis associated with infectious diseases are:

1. *Initial Delirium.* During the prodromal stage the patient will suddenly develop a delirium that will last according to the disease he is developing. In scarlet fever it may last only a few days, while in typhoid it may last a week to 10 days and even longer. However, as soon as the disease is established the sensorium will

Read before Irving Park Branch, Chicago Medical Society, May 15, 1935.

clear. In this instance I remember a very interesting case. A patient was sent here by a very competent physician with a diagnosis of dementia praecox, because she "suddenly talked out of her head," as her people explained. When admitted at the Chicago State Hospital she was delirious; however, after a few days stay in the Chicago State Hospital she cleared up, then developed a fever and a sore throat. On examining throat and cultures it was found that she was suffering from diphtheria. After administering antitoxin with other treatment for that disease she completely recovered.

2. *Fever Delirium.* A person will develop an infectious disease and when he develops a fever he will become delirious and the delirium will last as long as the fever. Apparently the delirium is due to the fever.

3. *Delusional States.* In some patients, during the fever, instead of developing a delirium they will develop delusions of persecution. It generally happens in the more chronic cases like tuberculosis, rheumatism, etc. I remember a case of a woman admitted at the Chicago State Hospital suffering from a protracted case of rheumatism which lasted for over two months and during that time she thought that we were trying to kill her by injecting poisons in her during her sleep, that we were putting electric wires on her, that we were murdering her children. However, all her delusions left her after she recovered from her rheumatism. She apologized to her physician and nurses. She told me she could never figure it out why she ever had those ideas. She sees now that it was all delusions.

4. *Post-infectious Psychosis.* Where a person will become sick with an infectious disease and several days to a couple of weeks after he has recovered from that disease or during the convalescing state he will develop a psychosis. The sypchosis may resemble a delirium, manic depressive insanity or dementia praecox. One characteristic symptom of post-infectious psychosis is mistaken identity. They will mistake people of their present environment for people they have known before and will call them by those names. I remember well one patient who mistook me for her father-in-law and would say to me, "How you have changed." (There is no resemblance whatever between us.)

Etiology, as stated, is the underlying infectious disease. Pathology, aside from the underlying diseases, like consolidation in pneumonia or intestinal ulcerations in typhoid. All cases of delirium that came to autopsy in my presence had the following findings: Congestion of the cerebral vessels and edema of the brain.

Symptoms. To go into all the symptoms of manic depressive psychosis and dementia praecox is not the scope of this paper and we will have to limit to the symptoms of delirium. A delirium can be recognized by the disorientation of the patient, by its vivid hallucinosis of both sight and hearing and by the fact that a delirious patient will always answer questions correctly if he understands the question and by repeated questioning you will soon find out that the patient is delirious and not negativistic.

Treatment: It is not necessary for me to tell you that the underlying condition like pneumonia, scarlet fever, etc., should be treated like any other case. You, as general practitioners, know as well if not better than I, all that is left for me to tell you is how to manage a delirious patient. A delirious patient sees and hears the most terrifying things which scares him and he tries to escape from them. In so doing he is liable to hurt himself or others. For this reason he must be continuously watched. His hallucinosis keeps him busy and restless and he has no time for food or sleep. It is imperative for the physician to see that the patient gets sufficient food and rest. At times it may be necessary to resort to tube feeding.

For Restlessness: The newer sedatives like sodium amytol, luminol, allonal may do good. If these fail the opiates must be resorted to. In all cases a good intelligent nurse is very helpful. Many times a delirious patient may be talked to sleep even when sedatives fail.

As stated in fever delirium, the delirium apparently is due to the fever and reduction of the fever should help the delirium. Generally cold baths will reduce high temperature. However a word of caution may not be out of the way. As stated before delirious patients generally have a congestion of the cerebral vessels and edema of the brain. Cold to the skin will contract the peripheral vessels and force more blood to the brain and aggravate conditions. an ice cap to the head may be used and when hydro-

therapy is used I would recommend that the patient be kept in a tub of water for several hours with a temperature of 94 degrees Fahrenheit which is the temperature of the skin will not interfere with the peripheral vessels and will reduce temperature by radiation.

Coal tar derivatives may be used with caution. The alkalines elimination supportive treatment when needed is known to you and there is no need for me to tell you about it.

DISCUSSION

Question: I should have someone explain the relation between lues and these different varieties of insanity and why there was nothing mentioned about the luetic treatment. Only once in this discussion was this mentioned.

Question: In regard to post-infectious psychosis following pneumonia or scarlet fever, what is the best method of treatment?

Question: We have recently been going over incipient cases of tuberculosis. Out of 125 cases, we found five in different state institutions (some had dementia praecox and some were manic depressive), which seems a rather high percentage. Most of these cases were not very sick from tuberculosis and were in the Municipal Tubercular Sanitarium from six months to a year. They were discharged with negative symptoms. Some had a cough. I wonder if a long continued low grade toxemia could be associated with this?

Dr. Lemchen: On February 21, 1921, I read a paper before this society which was published in the *Medical Record* on September 17, 1921, on Post-Somatic Psychosis in which there were a number of cases that have developed a psychosis after recovering from influenza. As the psychosis is due in part at least to the exhaustion of the infectious disease, supporting treatment is indicated. Good nourishing food, tonics, etc., which is known to all of you is indicated.

In the treatment of a delirious patient, I am a great believer in alcohol. (In the form of good whiskey and brandy.) It dilates the peripheral vessels, stimulates the heart muscle, stops restlessness, produces a feeling of well being in the patient and is oxidized and as such acts as a food. If your patient continues to be restless you may try the newer sedatives. In case they also fail use morphine. It is safe, it does not affect the heart. In the insane apparently it has no tendency to produce addiction. In the twenty-five years I have been in insane hospitals I have not seen one patient that has recovered from his psychosis becoming an addict of morphine. Of course you may have different experiences. A physician should use the drug with which he is best acquainted.

I agree with the doctor who stated that a chronic infection will at times produce a psychosis, as there is a greater percentage of insanity in people that are suffering from a chronic infection than in people that do not suffer from a chronic infection. I also agree that the form of psychosis an individual will develop depends more on the constitution of the individual than the kind of infection he is suffering from.

The human race may be divided in two parts; these individuals when developing a psychosis will develop one resembling dementia praecox, while others will resemble manic depressive.

One doctor wondered why we did not mention syphilis. Yes, syphilis plays a great part; about 10% of our admissions is due to that disease. However, our papers today are dealing with other forms. One doctor demonstrated a picture that was drawn by a patient of his who is an artist and who has recovered from a delirium which was apparently due to a streptococcus infection. It was what he saw during his delirium. It represented a whirling light in the center, a building, animals crawling out of lava, three Indians (exactly the same as in a book that he had seen only there were four Indians in the book) blending off into an alligator and at the bottom a multi-colored piano scarf. He afterwards recognized this as belonging to friends.

Dr. Lemchen: This picture proves what I have said before that the hallucinosis in delirium are vivid, because after they recover from their delirium they remember the hallucinosis but not current events. This proves that the stimuli producing the hallucinosis travel the pathway as do normal stimuli and come from without. Or, in other words, they are illusions. They differ from the majority of hallucinoses in dementia praecox which are true hallucinoses and the stimuli comes from within the brain. A dementia praecox will remember well current events but forgets easily his hallucinosis.

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Book Reviews

PRESCRIPTION WRITING AND FORMULARY. By Charles Solomon, M. D. 32 illustrations. Philadelphia, London, Montreal. J. B. Lippincott Company, 1935.

In this volume the author endeavors to bring before the reader such materials as may be helpful in providing a sound, scientific basis for prescription writing.

LACTOBACILLUS ACIDOPHILUS AND ITS THERAPEUTIC APPLICATION. By Rettger Levy, Weinstein & Weiss. New Haven. Yale University Press. 1935. Price $2.50.

SURGERY: QUEEN OF THE ARTS AND OTHER PAPERS AND ADDRESSES. By William D. Haggard, M. D. F. A. C. S., D. C. L., Nashville, Tennessee. Professor of Clinical Surgery, Vanderbilt University School of Medicine; Surgeon to Vanderbilt Hospital and St. Thomas Hospital; President, Southeastern Surgical Congress; former President of the American Medical Association, the American College of Surgeons, the Inter-State Postgraduate Medical Association of North America, the Southern Surgical Association, and the Tennessee Medical Association; formerly Lieutenant-Colonel, Medical Corps, U. S. A.; Consul-

tant in Surgery, Mesves Hospital Center, A. E. F. With Foreword by William J. Mayo. 389 pages with 41 illustrations. Philadelphia and London: W. B. Saunders Company, 1935. Cloth, $5.50 net.

The addresses that make up this volume were given before the National and other societies. The papers were chosen from some hundred and fifty contributions which the author made during on active hospital and private practice.

In this work the authors have published their conclusions of the bacterial study of lactobacillus acidophilus. Their experiments, results and conclusions are thoroughly discussed in this volume.

Three Years of H C I Therapy. A Record of Articles appearing in The Medical World. Philadelphia. W. Roy Huntsman. 1935.

Modern Treatment in General Practice. Volume II. Edited by Cecil P. G. Wakely, F. R. G. S., F. R. S. E. Baltimore. William Wood and Company. 1935. Price $4.00.

This book is a most valuable survey of modern therapeutic and diagnostic methods, and it would be difficult to find a more representative body of authors than those who have collaborated in it.

Obstetrical Practice. By Alfred C. Beck, M. D. More than one thousand illustrations. Baltimore. The Williams & Wilkins Company. 1935. Price $7.00.

This book presents the essentials of obstetric practice to undergraduate students and young practitioners as concisely as is consistent with the requirements of a text book. Disproven theories and the conflicting factors which have led to controversy are not discussed.

Law and Contemporary Problems. Expert Testimony. Volume II, No. 4. October, 1935. School of Law. Duke University.

The Rockefeller Foundation. Annual Report, 1934. New York.

Free Medical Care—Socialized Medicine. Compiled by E. C. Buehler. New York. Noble and Noble Publishers. 1935. Price $2.00.

"Free Medical Care" contains 360 pages of material by outstanding authorities in the medical and social field showing both sides of the picture. There are eighteen reprinted articles by such outstanding men. In addition there are 42 pages of bibliography, listing books, pamphlets and periodicals for further reading. For those who like to have their reading matter "digested" for them, there are 30 pages devoted to outlining the Principal Arguments for and against Free Medical Care as offered by the States. There is also a chapter on the Fundamental Facts on the Costs of Medical Care by I. S. Falk, formerly Associate Director of Study in charge of the Research Staff of the Committee on the Costs of Medical Care. And for those who think that a discussion of Socialized Medical Care at this time is premature, there is a chapter outlining twenty-five different forms of Socialized Medicine already adopted by various communities throughout the United States and Canada.

Regional Anatomy. Adapted to Dissection. By I. C. Hayner, M. D. Baltimore. William Wood & Company. 1935. Price $6.00.

In no previous work has the subject Regional Anatomy been presented in a brief but inclusive and strictly descriptive form. The work is intended for the undergraduate medical student, the recent graduate and the prospective surgeon.

Behavior Developments in Infants. By Evelyn Dewey. New York. Columbia University Press. 1935. Price $3.50.

This work is a survey of the literature on prenatal and postnatal activity from 1920-1934. The material is organized and presented in terms of specific types of behavior in an attempt to show the process of development of activity.

I'd Live It Again. By Lieut. Col. E. J. O'Meara., Ind. Med. Service (RTD) Philadelphia, J. B. Lippincott Company. 1935. Price $2.50.

An interesting volume of great literary charm, much human interest, and done in a delightfully lucid style is Lieut. Col. E. J. O'Meara's "I'd Live It Again."

Up until his retirement a few years ago, when he took up residence in Naples, Italy, Dr. O'Meara had spent some thirty years or more in the British Medical Service in India. He was instrumental, in fact, practically the greatest active and contactual force, in emergency training of Indian medical officers to accompany the Indian Army in its part in the World War.

Told in the form of a pleasant, informal series of personal causeries, there is never a dull, nor an ambiguous sentence in the whole book, which to the layman and the untravelled is most revealing as to medical practice in India and also, illuminative upon many facets of foreign life in the oldest of civilizations.

The book is worth purchase and careful perusal. Dr. O'Meara is well known as a professor as well as a practitioner of medicine, with many medical brochures and at least one medical text-book to his credit. His "Medical Guide for India" was written just before his final departure from the country and has already been through four editions. It was the doctor's last offering to the land where he had spent his life, and was written to remedy the lack of any modern, up-to-date medical books or post graduate courses for Indian Medical Students. Of this work, the doctor himself writes:

"When it was written post-graduate courses for Indian Medical Students were practically non-existent. Modern up-to-date medical books were too costly and numerous for men with small incomes. This lack was a very serious matter, and on account of it, many native practitioners after a few years grew disheartened and were giving up Western medicine. So I determined to write a book to meet this need, covering as far as possible in one volume, all the subjects required by an Indian practitioner."

The current book is exactly what would be expected from a learned physician with common sense, insight and perspective,—an accurate, alluring manuscript with quantities of information set forth with such clarity and force that much of value is absorbed most unconsciously.

Dr. O'Meara was Principal of the Medical School at Agra, was a member of the Royal Army Medical Corps, and actually served over a large section of British India in emergency and routine duty of varied, even kaleidoscopic, nature.

This book is one of the resent day best sellers.

Society Proceedings

CHICAGO MEDICAL SOCIETY

Wednesday, November 13, 1935

Presidents' Night, November 13, 1935

The Chicago Medical Society had as its guests Dr. James S. McLester of Birmingham, Alabama, President. and Dr. J. Tate Mason, Seattle, Wash., President-Elect, of the American Medical Association.

Dr. James S. McLester spoke on "The Clinical Aspects of Nutritional Failure in America."

Dr. J. Tate Mason spoke on "Some Considerations in the Etiology and the Surgical Treatment of Peptic Ulcers."

Regular Meeting, Wednesday, November 20, 1935

Obstetrical Program

Prevention of Infant Mortality from the Obstetric Standpoint—Stewart H. Clifford, Boston, Mass. Discussion—A. H. Parmelee, Joseph Baer,

Management of Heart Disease in Pregnancy—Phil A. Daly. Discussion—N. C. Gilbert.

Management of Kidney Disease in Pregnancy—Frederick H. Falls. Discussion—William C. Danforth.

Endocrines in Pregnancy—Edward Allen. Discussion—Charles Galloway.

Anaesthesias in Obstetrics—Eugene Cary. Discussion—James E. Fitzgerald.

MISSISSIPPI VALLEY MEDICAL SOCIETY

Second Annual Meeting

The second annual meeting of the Mississippi Valley Medical Society will be held at the Hotel Burlington, Burlington, Iowa, September 30, October 1-2, 1936. At a meeting of the Board of Directors held in Quincy, Illinois, on November 10, the following officers were elected for 1936:

President—H. B. Goodrich, M. D., Hannibal, Missouri.

President-Elect—F. B. Dorsey, Jr., M.D., Keokuk, Iowa.

First Vice-President—Dan G. Stine, M.D., Columbia, Missouri.

Second Vice-President—J. C. Steiner, M. D., Quincy, Illinois.

Third Vice-President—J. I. Marker, M.D., Davenport, Iowa.

Secretary-Treasurer — Harold Swanberg, M.D., Quincy, Illinois.

The following members comprise the Board of Directors for 1936:

For Illinois—B. D. Baird of Galesburg, F. D. Culbertson of Rushville, E. P. Coleman of Canton, G. M. Cline of Bloomington, W. M. Hartman of Macomb, C. P. McRaven of Pittsfield, F. A. Norris of Jacksonville, R. A. Slater of Carthage, Walter Stevenson, Harold Swanberg, C. A. Wells and W. M. Whitaker, of Quincy.

For Missouri—J. B. Biggs of Bowling Green, W. F. Francka of Hannibal, J. W. Hardesty of Hannibal, M. Pinson Neal of Columbia, W. D. Pipkin of Monroe City and E. S. Smith of Kirksville.

For Iowa—B. J. Dierker of Ft. Madison, J. T. Hanna ot Burlington and W. M. Hogle of Keokuk.

The Society is being incorporated for non-pecuniary profit in Illinois with registration in several states.

The first meeting held at Quincy, Illinois, last October was most successful. There were 300 registered from ten states, with forty-eight papers read by thirty-six clinicians. Plans are under way to greatly augment the present membership and to make the Burlington Assembly in 1936 the largest medical meeting ever held in Southeastern Iowa. The Board of Directors at their recent meeting voted to continue the $5.00 fee for membership and first years' dues, $2.00 for annual dues, and $3.00 registration fee for non-members at the annual meeting.

Marriages

Karl M. Beck to Miss Fannie Manley, both of Waukegan, Ill., September 20.

Avison Gano, Carrollton, Ill., to Miss Maude E. Gronevelt of Muskegon, Mich., August 3.

Francis X. Graff, Freeport, Ill., to Miss Constance Ford of Gary, Ind., August 24.

Clinton S. M. Koerner, Chicago, to Miss Rosella Frederick of Rankin, Ill., August 31.

Martin Carl Lindman, Rockford, Ill., to Miss Alice Dorothy Port of Youngstown, Ohio, September 2.

Personals

Dr. Maskel Lee, Atlanta, observed his eightieth birthday with a dinner, October 17.

Dr. Lee C. Gatewood, Chicago, discussed the diagnosis and treatment of colitis before the Peoria City Medical Society, November 5.

Dr. Harry A. Yeager has recently been appointed health officer at Litchfield.

Dr. Walter H. Baer has been appointed managing officer of the Peoria State Hospital.

Dr. Ruth R. Darrow discussed "Icterus Gravis in the New-Born" before the Chicago Council of Medical Women, November 1.

Dr. Abraham F. Lash, Chicago, discussed "Puerperal Sepsis" before the Will-Grundy County Medical Society in Joliet, October 30.

Dr. Alfred Adler, Vienna and New York, gave a lecture at the University of Illinois College of Medicine, November 4, on "Medical Psychology."

Dr. M. Herbert Barker, Chicago, addressed the La Salle County Medical Society, October 30, on nephritis, and Dr. George E. Shambaugh, Jr., "What Can Be Done for Sinus Disease."

Dr. Karl A. Meyer, Chicago, discussed "Regional Enteritis: Symptoms, Diagnosis and Treatment" before the Adams County Medical Society in Quincy, November 11.

Dr. Carl A. Peterson, Moline, has been named a district superintendent of health on the staff of the state health department. Moline will be his headquarters.

Dr. John Albert Key, St. Louis, discussed fractures of the joints before the Madison County Medical Society at a meeting in Alton, November 1.

Dr. Charles F. Read, Elgin, among other speakers, discussed psychoanalysis before the Kane County Medical Society at a meeting, October 9, at the Elgin State Hospital.

Dr. David J. Davis, dean, University of Illinois School of Medicine, will deliver the presidential address before the Institute of Medicine of Chicago, December 3, on "Some Studies on the Epidemiology of Streptococcus Infections."

Dr. John DeJ Pemberton, associate professor of surgery, University of Minnesota Graduate School of Medicine, Rochester, presented the annual Mayo lecture of Northwestern University at Thorne Hall, November 15, on "Development of Thyroid Surgery."

Speakers before the Chicago Gynecological Society, November 15, include Drs. Fred O. Priest, Chicago, and Gilbert P. Pond, Oak Park, on "Surgical Complications of Pregnancy" and "Positive and Permanent Identification of the New-Born," respectively.

At a meeting of the Chicago Laryngological and Otological Society, November 4, Drs. Alfred Lewy read a paper on "After-Care of the Radical Mastoid Operation"; Samuel Salinger, "Rhinoplasty; Some Practical Considerations," and Richard L. Webb, Ph.D., "Lymphatics of the Head and Neck."

Dr. Harold B. Cushing, Montreal, Canada, among others, addressed the quarterly meeting of the Iowa and Illinois Central District Medical Association in Moline, October 18, on "Newer Phases of Prophylactic Inoculation in Children—Pertussis, Measles, Diphtheria, Poliomyelitis and Scarlet Fever."

Rear Admiral John Dowes, commandant of the ninth naval district, Great Lakes, Ill., delivered the Memorial Lecture at the university, November 11. The lecture has been endowed by alumni and faculty members of the school in memory of the alumni and members of the staff of the medical school who died during the World War.

Dr. Daniel H. Levinthal addressed the Illinois State Nurses' Association at Freeport, Illinois, November 9, 1935. Subject: "Surgical Treatment of the Residual Paralysis Following Poliomyelitis, with moving pictures.

Acclaimed as one of the men who have accomplished much in the promotion of public health and the saving of human lives, as a result of work in Biological Science, Dr. H. K. Mulford was honored with a dinner in celebration of his Golden Pharmaceutical Anniversary at the Union League, Philadelphia, on the evening of October 31, 1935, by a group of distinguished scientists, physicians, chemists, pharmacists and educators. The event was sponsored by the National Drug Company, Mr. Charles E. Carr acting as chairman. Dr. Wilmer Krusen, President of the Philadelphia College of Pharmacy and Science, ably served as toastmaster.

News Notes

—The management of children's behavior problems is the theme of a course that opened at the University of Illinois College of Medicine, November 18, to continue for eight weeks. The meetings will be held at the Institute for Juvenile Research and the fee is $10. The course is of particular interest to pediatricians, but other interested physicians are invited.

—Construction has begun on a new $75,000 two story addition to Michael Reese Hospital.

The first floor and basement of the new building will be occupied by a medical library, given by Louis Florsheim in memory of his wife, Lillian. The Samuel Deutsch Human Convalescent Serum Center will be on the second floor. The center prepares human serum mainly for infantile paralysis, scarlet fever and measles.

—Dr. Charles W. Hughes, assistant in anatomy at Loyola University School of Medicine, has been appointed associate professor of anatomy, succeeding Dr. Simon B. Chandler. Forty-nine students in the school of medicine were awarded certificates of membership in honorary seminars, October 14. Membership in the seminars is restricted to students of high scholastic standing who are in a position to handle difficult diagnosis, technic and treatment of cases presented for discussion at seminar meetings. Of ten clinics now operating in the Loyola University Dispensary, the allergy clinic is the most frequented, it is reported.

—The first annual meeting of the Society of Illinois Bacteriologists was held at the Chicago Woman's Club, Chicago, November 1. Fred W. Tanner, Ph.D., Urbana, president of the society, opened the meeting. Dr. Alexander A. Day, chairman, department of bacteriology, Northwestern University Medical School, Chicago, spoke on "Trends of Medical Bacteriology"; A. L. Whiting, Urbana, "High Points of Agricultural Bacteriology," and Winford Lee Lewis, Ph.D., director, scientific research, Institute of American Meat Packers, Chicago, "What Bacteriology Means to Industry." The society was organized May 8.

—The Illinois State Department of Health announces that venereal diseases are now by a wide margin the greatest of all health hazards to young adults. About 18,000 new cases of syphilis are reported annually in the state; already more than 14,000 cases have been reported this year. Nearly two-thirds of the 225,000 diagnostic laboratory tests made annually by the state department of public health relate to syphilis. The department spends $20,000 annually for drugs for the treatment of indigent patients alone. About 1,400 mental patients are always in state hospitals at an annual cost of about $500,000 because of syphilis. More cases of the disease are reported than of any other disease except measles and scarlet fever, the department reports.

—Three professors retiring from the faculty of Loyola University School of Medicine were honored at a dinner at the Palmer House, November 14, Dr. Ulysses J. Grim is retiring as head of the department of otolaryngology; Dr. George W. Mahoney of the department of ophthalmology, and Dr. Frank M. Phifer, the department of genito-urinary diseases. Dr. Grim, who has been associated with Loyola since 1910, will be succeeded by Dr. George T. Jordan, clinical professor of ear, nose and throat diseases. Dr. Carl F. Schaub, clinical instructor in ophthalmology, will succeed Dr. Mahoney, who has been connected with the school since 1918. Dr. Phifer's successor will be Dr. Herbert E. Landes, clinical professor of urology. Dr. Phifer was appointed professor in 1919 and has been head of the department since 1927. The new appointees will serve until permanent heads are chosen, it was stated. Reuben M. Strong, Ph.D., secretary of the medical school faculty, was toastmaster at the dinner, and Dr. Louis D. Moorhead, dean of the school, gave the principal address.

—An outbreak of typhoid occurred at Grand Tower, Jackson County, during August, one month after a family reunion at which twelve persons were present; seven of the persons who attended the dinner were ill. The hostess recalled that she had bought from a dairy four quarts of raw milk from which she had made the ice cream. Milk from the dairy in question had gone to each household of thirteen other persons involved in a similar outbreak in the same community, with onset during July and August. The health department points out that while the investigation failed to identify definitely the source of contamination, evidence indicated that the milk was responsible. It is believed that a typhoid carrier or unrecognized case among the dairy help or customers was the original source. A young girl whose parents lived on the farm came home ill from Washington late in July. She had fever and was found to have typhoid when she entered a St. Louis hospital later for treatment of appendicitis.

—An attractive new booklet on the care of babies has been published recently by the State Department of Public Health and is now available for free distribution in Illinois. Most of the copy was prepared by members of the Chicago Pediatric Society and the remainder by

other physicians experienced in child care and training. This insures that every chapter is scientifically authentic and an expression of the best modern medical opinion. Diet, habit training, disease prevention, accident prevention, care of the sick, the preparation and handling of food, dental needs and other topics of importance in the healthful life of babies are discussed in sufficient detail to make the booklet a valuable guide for mothers with young babies.

It is the plan of the Department to mail out a copy of the booklet to the parents of newly born babies whose births are registered. Copies may be obtained upon request.

—Soon after January 1, Armour and Company will open a new pharmaceutical manufacturing laboratory at Chicago with the finest of modern equipment and facilities. Present capacity of this important division of the company's plant will be doubled, providing for development in the use of animal products by the medical profession for years to come.

In addition, new research laboratory facilities will be established devoted to scientific investigation of organotherapeutic remedies.

Deaths

Mary J. Henry Aiton, Summer Hill, Ill.; Northwestern University Woman's Medical School, Chicago, 1901; aged 70, died, September 1, of multiple neuritis.

James C. Belsan, Chicago; Northwestern University Medical School, Chicago, 1905; aged 56; died, September 24, of myocarditis.

Charles David Carter, De Kalb, Ill.; Rush Medical College, Chicago, 1883; member of the Illinois State Medical Society; past president of the De Kalb County Medical Society; on the staff of St. Mary's Hospital; aged 75; died, November 14, of chronic nephritis and uremia.

Lester Blake Cavins, Bloomington, Ill.; Baltimore Medical College, 1904; a Fellow, A. M. A.; medical director of the State Farm Life Insurance Company; served during the World War; aged 58; on the staff of the Brokaw Hospital, Normal, where he died, September 28, of coronary thrombosis.

Alexander Chittick, Peoria, Ill.; National Medical University, Chicago, 1904; aged 62; died, October 9, of cerebral hemorrhage.

Osmon Charles Church, Steelville, Ill.; Barnes Medical College, St. Louis, 1910; member of the Illinois State Medical Society; served during the World War; aged 61; died, September 9, in the Christian Welfare Hospital, East St. Louis.

James St. Clair Cussins, Decatur, Ill.; Rush Medical College, Chicago, 1877; aged 84; died, September 5.

Guy B. Dickson, Chicago; Hahnemann Medical College and Hospital, Chicago, 1886; aged 73; died, October 21, of heart disease.

Charles Edward Greenfield, Chicago; Rush Medical College, Chicago, 1886; member of the Illinois State Medical Society; aged 75; died, November 3, in the Presbyterian Hospital, of bronchopneumonia.

Charles D. Jones, Moline, Ill.; Chicago Medical College, 1877; aged 85; died, September 9.

Frederick F. Kitzing, Chicago; Rush Medical College, Chicago, 1905; aged 56; died, July 18, of cerebral hemorrhage.

James Alfred Maloney, Chicago; Temple University School of Medicine, Philadelphia, 1910; aged 49; died, August 27, of chronic myocarditis.

James Allan Marshall, Pontiac, Ill.; a Fellow, A. M. A.; Detroit College of Medicine, 1886; practiced medicine and surgery in Pontiac, Illinois, for past 49 years and 11 months; for 35 years attending surgeon at the Illinois State Reformatory; aged 74, died November 15, 1935, in the Passavant Memorial Hospital, Chicago, of carcinoma of transverse colon.

Simon Samuel Albert Miller, Chicago; New Orleans University Medical College, 1900; aged 61; died, August 20, of chronic myocarditis.

Lotharo L. Morey, Vandalia, Ill.; Physio-Medical Institute, Cincinnati, 1881; Physio-Medical College of Indiana, Indianapolis, 1882; member of the Illinois State Medical Society; aged 78; died, September 14, of interstitial nephritis.

Eugene P. Nolan, Chicago; Bennett Medical College, Chicago, 1915; on the staff of St. Mary of Nazareth Hospital; aged 54; died, August 16, of arteriosclerosis and coronary thrombosis.

Ernst Phillip Raab, Belleville, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the Illinois State Medical Society; formerly president of the school board and library board; on the staff of St. Elizabeth's Hospital; aged 75; died, September 21, of heart disease.

Joseph L. Russell, Chicago; Jenner Medical College, Chicago, 1902; aged 65; died, October 28, of carcinoma.

Earnest Newton Scott, Hinsdale, Ill.; Rush Medical College, Chicago, 1900; member of the Illinois State Medical Society; on the staff of the Hinsdale Sanitarium and Hospital; aged 59; died, August 31, of heart disease.

Sebastian Stol, Chicago; College of Physicians and Surgeons of Chicago, 1892; a Fellow, A. M. A.; aged 66; died, October 27, in St. Elizabeth's Hospital, of coronary sclerosis.

Hosea August Vise, Benton, Ill.; St. Louis College of Physicians and Surgeons, 1905; member of the Illinois State Medical Society; aged 52; died, September 16, of carcinoma of the rectum.

"The interest which vitamins hold for the physician is not alone in their relation to certain well-defined diseases, as scurvy, beri-beri and rickets, but rather in the fact that chronic vitamin deficiency produces numerous vague, borderline states of ill-health, which often puzzle the physician and disable the patient."

—J. S. McLester: "Nutrition and Diet in Health and Disease."

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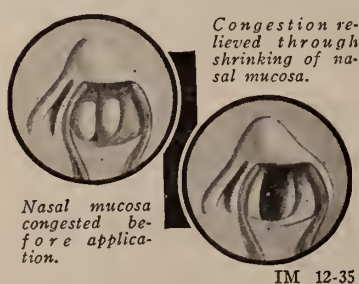
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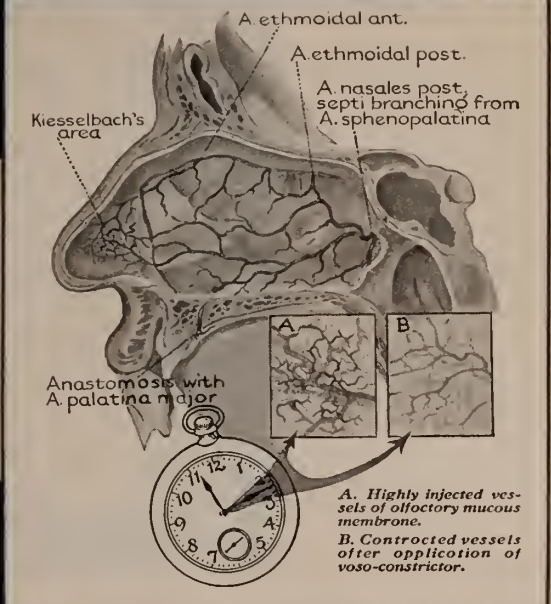
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From the round table conference on infantile eczema at the Fourth Annual Meeting of the American Academy of Pediatrists came the following significant suggestions relative to the infantile eczema group of conditions and their treatment.

The infantile eczema group, as outlined by Dr. Lewis Webb Hill, includes:

1. Seborrheic dermatitis
   (a) Erythrodermia desquamative
2. Allergic eczema
   (a) Atopic eczema
      (1) Infantile
      (2) Chronic in older children
   (b) Contact dermatitis.
3. Mycotic eczema*

*This, of course, should not be called "eczema" but it is so often clinically undistinguishable from chronic eczema that it is probably best to include it in the group.

Dr. Irving McQuarrie reviewed the experiments of Dr. Burr (wherein rats deprived of unsaturated fatty acids developed eczema-like conditions) and emphasized the indispensable requirements in animal nutrition for unsaturated fatty acids, in particular linoleic and linolenic.

Dr. McQuarrie indicated the transfer of the experimental work on rats to the treatment of eczematous babies by Dr. Hansen with highly encouraging results.

The optimal dosage is not established as yet, but according to McQuarrie, is in the neighborhood of an ounce a day—from one-half to two teaspoonsful for babies ranging from five to eighteen months.

Dr. McQuarrie further pointed out that corn oil, like all animal oils, is less effective than linseed oil; that cod liver oil is not as effective as linseed oil derivatives.

Dr. Hill indicated that one of the virtues of treatment with linoleic and linoleic acid unsaturates, is their perfect harmlessness.

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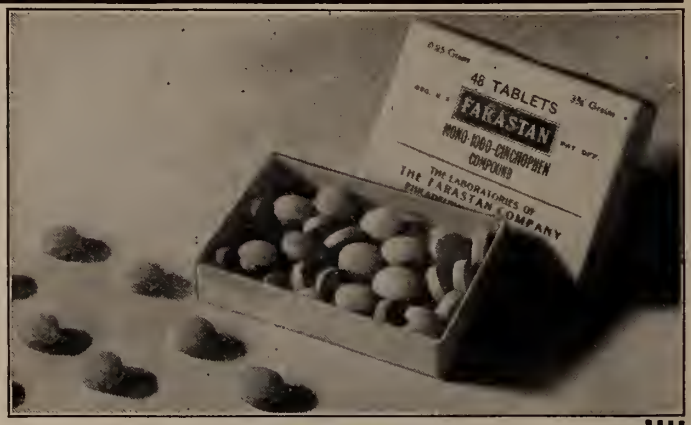
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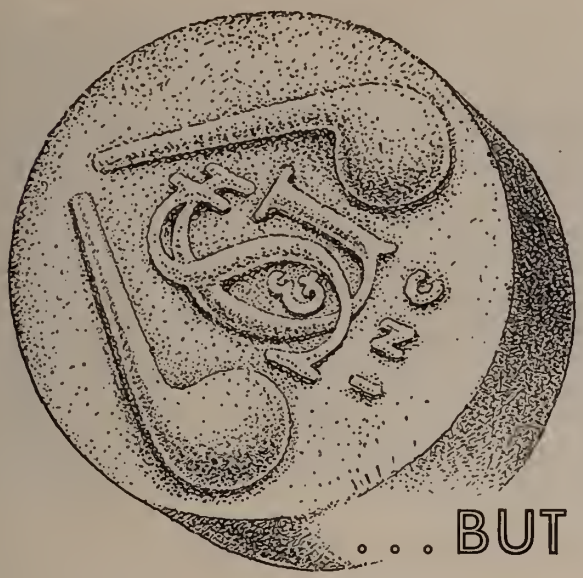
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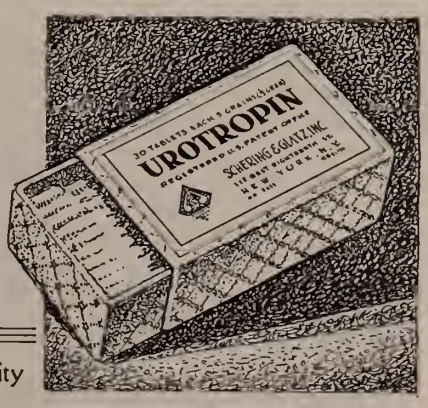
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